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ABSTRACT

This publication provides a comprehensive overview of work done across all parts of the National Center for Education Statistics (NCES). Each issue contains short publications, summaries, and descriptions that cover all NCES publications, data products, and funding opportunities developed over a 3-month period. Each issue also contains a message from the NCES on a timely topic and a featured topic with invited commentary. This issue's featured topic is the "Digest of Education Statistics." The first section contains: (1) "Digest of Education Statistics: 2001" (Thomas D. Snyder and Charlene M. Hoffman); and (2) "Invited Commentary: A 40-Year Perspective on the 'Digest of Education Statistics'" (Grant, W. Vance). The second section, "Elementary and Secondary Education," contains: (3) "Children's Reading and Mathematics Achievement in Kindergarten and First Grade" (Kristin Denton and Jerry West). Section 3, "Postsecondary Education," contains: (4) "Fall Enrollment in Title IV Degree-Granting Postsecondary Institutions: 1998" (Frank B. Morgan); (5) "The Persistence of Employees Who Pursue Postsecondary Study" (Lisa Hudson and David Hurst); (6) "Distance Education Instruction by Postsecondary Faculty and Staff, 1998" (Ellen M. Bradburn); (7) "Postsecondary Institutions in the United States: Fall 2000 and Degrees and Other Awards Conferred: 1999-2000" (Laura G. Knapp, Janice E. Kelly, Roy W. Whitmore, Shiying Wu, Lorraine M. Gallego, and Eric Grau); and (8) "Study of College Costs and Prices: 1988-89 to 1997-98" (Alisa F. Cunningham, Jane V. Wellman, Melissa E. Clinedinst, and Jamie P. Merisotis). The next section, "Libraries," contains: (9) "Public Libraries in the United States: Fiscal Year 1999" (Adrienne Chute, P. Elaine Kroe, Patricia Garner, Maria Polcari, and Cynthia Jo Ramsey). The next section, "International Statistics," contains: (10) "Outcomes of Distance Learning: Results from the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy" (Mariann Lemke, Christopher Calsyn, Laura Lippman, Leslie Jocelyn, David Kastberg, Yan Yun Liu, Stephen Roey, Trevor Williams, Thea Kruger, and Ghedam Bairu). A section on "Crosscutting Statistics" contains: (11) "Federal Support for Education: Fiscal Years 1980 to 2001" (Charlene M. Hoffman); and (12) "Labor Market

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Outcomes of Non-College-Bound High School Graduates" (Peter Teitelbaum and Phillip Kaufman). A list of NCES products and publications is included. (SLD)

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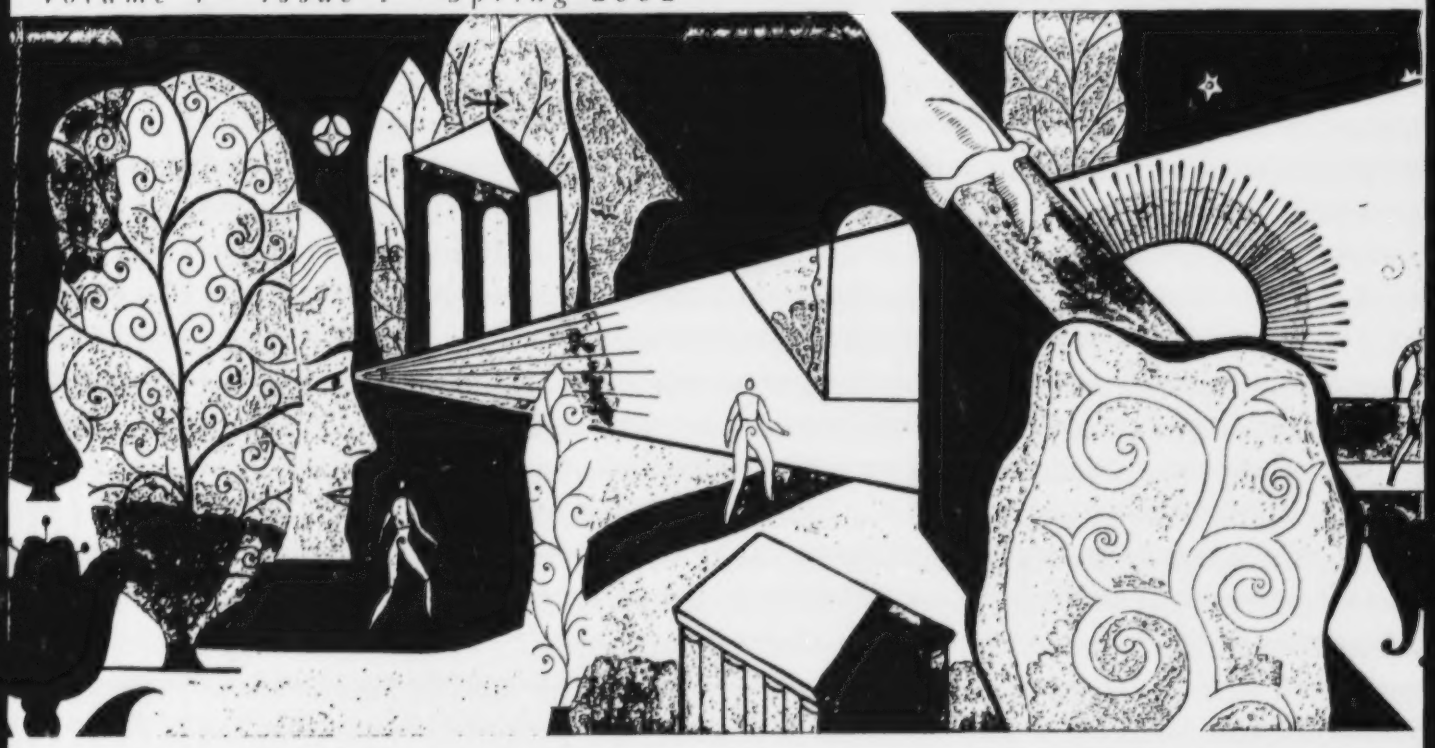

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Volume 4, Issue 1, Spring 2002
NCES 2002-608

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Editorial Note

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

Education Statistics Quarterly

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications appears in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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Working to Meet Customer Expectations

Each year, the National Center for Education Statistics (NCES) releases over 100 publications and data products, including analytic reports, data compendiums, issue briefs, data files, institution and agency directories, procedural handbooks, and CD-ROMs. These products are derived from more than 30 major ongoing statistical studies currently under way at NCES in the areas of early childhood education, elementary/secondary education, postsecondary and adult education, vocational education, educational assessments, longitudinal studies of student development and educational outcomes, international statistics, and libraries. The ever-increasing demand for information on education in the United States and in other countries has resulted in expanded data collection activity at NCES and has greatly increased the NCES storehouse of statistical information. While our customers continue to ask for more data, they also want it to be produced more quickly and presented in ways that will facilitate different kinds of analysis.

NCES customers are numerous and diverse, and they use our data for many different purposes. Our customers include policymakers at all levels of government, educators, academic researchers, education associations and advocacy groups, businesses, the news media, parents, and members of the general public. Our data are used for such purposes as planning federal education programs, evaluating educational progress in the nation, performing secondary analyses, developing new education policies, measuring market opportunities and forecasting demand for products, informing the public about such issues as student achievement and school expenditures, and becoming more knowledgeable and making informed decisions about current educational issues.

An Annual Release Calendar

Feedback from NCES customers, obtained through customer surveys and other sources, informs us about areas where we are doing well and where we need to improve. One issue that customers have frequently brought to our attention is their need to know when key reports will be released each year. In an effort to better satisfy our customers' need for predictability, NCES has recently developed an annual calendar for popular publications that it releases regularly. (This schedule is now available on the NCES Web Site—http://nces.ed.gov—along with more information about these publications.) The *Digest of Education Statistics*, featured in this issue of the *Education Statistics Quarterly*, is one of our "mandatory" publications—that is, it is one of a limited number of high-profile publications that NCES is committed to releasing at a specific time. Here is our current release calendar for these publications, beginning with upcoming releases:

- *The Condition of Education*—June 1 (congressionally mandated release date). This annual report to Congress describes the current status and recent progress of education in the United States. *The Condition* is an indicator report that covers numerous aspects of education, including enrollments and participation, student

performance and other outcomes, the quality of educational environments, and support for education.

- *Projections of Education Statistics*—August. This annual report provides data on enrollments, teachers, graduates, degrees, and expenditures for the past 14 years and projections for the next 12 years.
- *Indicators of School Crime and Safety*—October. A joint effort of NCES and the Bureau of Justice Statistics, this annual report provides the latest indicator data on the status of crime in the nation's schools. It represents the perspectives of students, teachers, principals, and the general population.
- *Dropout Rates in the United States*—November. This annual report presents the latest available data on high school dropout and completion rates, as well as time series data covering almost 30 years. It also examines the characteristics of dropouts and completers.
- *Digest of Education Statistics*—January. The *Digest* is an annual report providing a compilation of statistical information covering prekindergarten through graduate school. It includes a selection of data from many sources, both government and private, but draws especially on the results of NCES studies.
- *Education Statistics Quarterly*—spring, summer, fall, and winter. The *Quarterly* offers an accessible, convenient overview of all NCES products released in a given quarter. Each issue also includes a featured topic with invited commentaries from experts in the education research and policy communities.

In any given year, NCES may add publications to this list. Examples include reports that present new results of major studies with high visibility, such as the National Assessment of Educational Progress or the Program for International Student Assessment.

NCES is committed to maintaining this annual release schedule, and our customers tell us that they are pleased with it. We would like to hear what you think about the schedule. Please direct your comments to the *Quarterly* Editorial Board at the following address:

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Digest of Education Statistics: 2001

Thomas D. Snyder and Charlene M. Hoffman

This article was excerpted from the Foreword and Introduction to the Compendium of the same name. The sample survey and universe data are from numerous sources, both government and private, and draw especially on the results of surveys and activities carried out by NCES.

The 2001 edition of the *Digest of Education Statistics*, produced by the National Center for Education Statistics (NCES), is the 37th in a series of publications initiated in 1962. (The *Digest* has been issued annually except for combined editions for the years 1977–78, 1983–84, and 1985–86.) Its primary purpose is to provide a compilation of statistical information covering the broad field of American education from prekindergarten through graduate school.

The publication contains information on a variety of subjects in the field of education statistics, including the number of schools and colleges, teachers, enrollments, and graduates, in addition to educational attainment, finances, federal funds for education, libraries, and international education. Supplemental information on population trends, attitudes on education, education characteristics of the labor force, government finances, and economic trends provides background for evaluating education data.

In addition to updating many of the statistics that have appeared in previous years, this edition contains a significant amount of new material, including

- use of various instructional approaches by kindergarten teachers;
- pupil/teacher ratio in public schools, by level and size of school; and
- percentage distribution of elementary and secondary school children, by average grades.

Participation in Formal Education

In the fall of 2001, about 68.5 million persons were enrolled in American schools and colleges (table A). About 4.3 million were employed as elementary and secondary school teachers and as college faculty. Other professional, administrative, and support staff of educational institutions numbered 4.8 million. Thus, about 77.5 million people were

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Table A.—Estimated number of participants in educational institutions, by level and control of institution: Fall 2001

(In millions)

Participants	All levels (elementary, secondary, and degree-granting)	Elementary and secondary schools			Degree-granting institutions		
		Total	Public	Private	Total	Public	Private
Total	77.5	59.9	53.2	6.7	17.7	13.4	4.3
Enrollment[1]	68.5	53.2	47.2	5.9	15.3	11.8	3.5
Teachers and faculty[2]	4.3	3.6	3.1	0.4	0.8	0.5	0.2
Other professional, administrative, and support staff	4.8	3.2	2.9	0.3	1.6	1.1	0.5

[1]Enrollment data include students in local public school systems and in most private schools (religiously affiliated and nonsectarian). The data exclude students in subcollegiate departments of postsecondary institutions, residential schools for exceptional children, and federal schools. Elementary and secondary enrollment includes most kindergarten and some nursery school enrollment, but excludes preprimary enrollment in schools that do not offer first grade or above. Enrollment data for degree-granting institutions comprise full-time and part-time students enrolled in degree-credit and non-degree-credit programs in universities, other 4-year colleges, and 2-year colleges that participated in Title IV federal financial aid programs.

[2]Data for teachers and other staff in public and private elementary and secondary schools and colleges and universities are reported in terms of full-time equivalents.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, unpublished projections and estimates. (This table was prepared July 2001.) (Originally published as table 1 on p. 11 of the complete report from which this article is excerpted.)

involved, directly or indirectly, in providing or receiving formal education. In a nation with a population of about 281 million, more than 1 out of every 4 persons participated in formal education.

Elementary/Secondary Education

Enrollment

Enrollment in public elementary and secondary schools rose 20 percent between 1985 and 2001.[1] The fastest public school growth occurred in the elementary grades, where enrollment rose 24 percent over the same period, from 27.0 million to 33.6 million. Private school enrollment grew more slowly than public school enrollment over this period, rising 7 percent, from 5.6 million in 1985 to 5.9 million in 2001 (table B). As a result, the proportion of students enrolled in private schools declined slightly, from 12 percent in 1985 to 11 percent in 2001.

Since the enrollment rates of kindergarten and elementary school age children have not changed much in recent years, increases in elementary school enrollment have been driven primarily by increases in the number of children. Public secondary school enrollment declined 8 percent from 1985 to 1990, but then rose 20 percent from 1990 to 2001, for a net increase of 10 percent.

NCES forecasts record levels of total elementary and secondary enrollment for the next several years as the school-age population crests. The fall 2001 public school enrollment marks a new record, and new records are expected every year through the early 2000s. Public elementary school enrollment is projected to decline slowly until the later part of the decade and then increase, so that the fall 2011 projection is slightly lower than the 2001 enrollment. In contrast, public secondary school enrollment is expected to increase 3 percent between 2001 and 2011.

Teachers

An estimated 3.6 million elementary and secondary school teachers were engaged in classroom instruction in the fall of 2001 (table B). This number has risen in recent years, up about 29 percent since 1990. The number of public school teachers in 2001 was 3.1 million, and the number of private school teachers was about 0.4 million.

The number of public school teachers has risen slightly faster than the number of students over the past 10 years, resulting in small declines in the pupil/teacher ratio. In the fall of 2000, there were an estimated 16.0 public school pupils per teacher, compared with 17.2 public school pupils per teacher 10 years earlier. Over the same period, the pupil/teacher ratio in private schools decreased from 14.7 to 13.9. Data from the end of the 1990s suggest a continuation of the historical trend toward lower public school pupil/teacher ratios, which had been stable during the late 1980s and early 1990s.

[1]The 2001 enrollment data are based on projections.

Table B.—Public and private elementary and secondary enrollment, teachers, and pupil/teacher ratios: Fall 1955 to fall 2001

Year	Elementary and secondary enrollment			Elementary and secondary teachers			Elementary and secondary pupil/teacher ratios		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
1955	35,280	30,680	[1]4,600	1,286	1,141	[1]145	27.4	26.9	[1]31.7
1960	42,181	36,281	[1]5,900	1,600	1,408	[1]192	26.4	25.8	[1]30.7
1965	48,473	42,173	6,300	1,933	1,710	223	25.1	24.7	28.3
1970	51,257	45,894	5,363	2,292	2,059	233	22.4	22.3	23.0
1971	51,271	46,071	[1]5,200	2,293	2,063	[1]230	22.4	22.3	[1]22.6
1972	50,726	45,726	[1]5,000	2,337	2,106	[1]231	21.7	21.7	[1]21.6
1973	50,446	45,446	[1]5,000	2,372	2,136	[1]236	21.3	21.3	[1]21.2
1974	50,073	45,073	[1]5,000	2,410	2,165	[1]245	20.8	20.8	[1]20.4
1975	49,819	44,819	[1]5,000	2,453	2,198	[1]255	20.3	20.4	[1]19.6
1976	49,478	44,311	5,167	2,457	2,189	268	20.1	20.2	19.3
1977	48,717	43,577	5,140	2,488	2,209	279	19.6	19.7	18.4
1978	47,635	42,550	5,085	2,479	2,207	272	19.2	19.3	18.7
1979	46,651	41,651	[1]5,000	2,461	2,185	[1]276	19.0	19.1	[1]18.1
1980	46,208	40,877	5,331	2,485	2,184	301	18.6	18.7	17.7
1981	45,544	40,044	[1]5,500	2,440	2,127	[1]313	18.7	18.8	[1]17.6
1982	45,165	39,566	[1]5,600	2,458	2,133	[1]325	18.4	18.6	[1]17.2
1983	44,967	39,252	5,715	2,476	2,139	337	18.2	18.4	17.0
1984	44,908	39,208	[1]5,700	2,508	2,168	[1]340	17.9	18.1	[1]16.8
1985	44,979	39,422	5,557	2,549	2,206	343	17.6	17.9	16.2
1986	45,205	39,753	[1]5,452	2,592	2,244	[1]348	17.4	17.7	[1]15.7
1987	45,487	40,008	5,479	2,631	2,279	352	17.3	17.6	15.6
1988	45,430	40,189	[1]5,242	2,668	2,323	[1]345	17.0	17.3	[1]15.2
1989	45,741	40,543	5,198	2,734	2,357	377	16.7	17.2	13.8
1990	46,451	41,217	[1]5,234	2,753	2,398	[1]355	16.9	17.2	[1]14.7
1991	47,322	42,047	5,275	2,787	2,432	355	17.0	17.3	14.9
1992	48,145	42,823	[1]5,322	2,822	2,459	[1]363	17.1	17.4	[1]14.7
1993	48,813	43,465	5,348	2,870	2,504	366	17.0	17.4	14.6
1994	49,609	44,111	[1]5,498	2,926	2,552	[1]374	17.0	17.3	[1]14.7
1995	50,502	44,840	5,662	2,978	2,598	380	17.0	17.3	14.9
1996	51,375	45,611	[1]5,764	3,054	2,667	[1]387	16.8	17.1	[1]14.9
1997	51,968	46,127	5,841	3,134	2,746	388	16.6	16.8	15.1
1998	52,476	46,539	[1]5,937	3,221	2,830	[1]391	16.3	16.4	[1]15.2
1999	52,875	46,857	6,018	3,304	2,907	397	16.0	16.1	15.2
2000	[1]53,104	[1]47,160	[2]5,944	[1]3,381	[1]2,953	[2]428	[1]15.7	[1]16.0	[2]13.9
2001[2]	53,157	47,213	5,944	3,551	3,119	432	15.0	15.1	13.8

[1]Estimated.

[2]Projected.

NOTE: Data for teachers are expressed in full-time equivalents. Data include kindergarten and a relatively small number of nursery school teachers and students. Some data have been revised from previously published figures. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics: *Statistics of Public Elementary and Secondary Day Schools*; Common Core of Data (CCD) surveys, and *Projections of Education Statistics to 2011* (NCES 2001-083). (This table was prepared July 2001.) (Taken from table 65 on p. 76 of the complete report from which this article is excerpted.)

The salaries of public school teachers, which lost purchasing power to inflation during the 1970s, rose faster than the inflation rate in the 1980s. Since 1990–91, salaries for teachers have generally maintained pace with inflation. The average salary for teachers in 2000–01 was $42,898, about the same in constant dollars as at the beginning of the decade.

Student performance

Most of the student performance data in the *Digest* are drawn from the National Assessment of Educational Progress (NAEP). The NAEP assessments have been conducted using three basic designs. The main NAEP reports current information for the nation and specific geographic regions of the country. It includes students drawn from both public and nonpublic schools and reports results for student achievement at grades 4, 8, and 12. The main NAEP assessments follow the frameworks developed by the National Assessment Governing Board (NAGB) and use the latest advances in assessment methodology.

Since 1990, NAEP assessments have also been conducted at the state level. A state that chooses to participate receives assessment results on the performance of students in that state. In its content, the state assessment is identical to the assessment conducted nationally. However, because the national NAEP samples were not, and are not currently, designed to support the reporting of accurate and representative state-level results, separate representative samples of students are selected for each participating jurisdiction/state.

NAEP long-term trend assessments are designed to give information on changes in the basic achievement of America's youth since the early 1970s. They are administered nationally and report student performance at ages 9, 13, and 17 and in grades 4, 8, and 11 in writing. Measuring trends of student achievement or change over time requires the precise replication of past procedures. Therefore, the long-term trend instrument does not evolve based on changes in curricula or in educational practices.

Reading. Overall achievement scores on the long-term trend reading assessment for the country's 9-, 13-, and 17-year-old students are mixed. Reading performance scores for 9- and 13-year-olds were higher in 1999 than they were in 1971. However, the 1999 scores were about the same as the 1984 scores. The reading performance of 17-year-olds was about the same in 1999 as it was in 1971.

Black 9-, 13-, and 17-year-olds exhibited higher reading performance in 1999 than in 1971. However, performance for all three age groups in 1984 was about the same as in 1999. The performance levels of White 9- and 13-year-olds also rose between 1971 and 1999. Separate data for Hispanics were not gathered in 1971, but changes between 1975 and 1999 indicate an increase in performance among 9-, 13-, and 17-year-olds. There was no significant difference between the 1984 and 1999 reading performance of 9-, 13-, and 17-year-old Hispanics.

Mathematics. Results from the long-term trend mathematics assessments indicate that scores of 9-, 13-, and 17-year-old students were higher in 1999 than in 1973, but have remained unchanged since 1994. This pattern was similar for White, Black, and Hispanic students.

A 2000 voluntary assessment of the states found that mathematics proficiency varied widely among eighth-graders in the 44 participating jurisdictions (39 states, American Samoa, Guam, Department of Defense overseas and domestic schools, and the District of Columbia). Overall, 65 percent of these eighth-grade students performed at or above the *Basic* level in mathematics, and 26 percent performed at or above the *Proficient* level.[2] Only four jurisdictions (one state, the District of Columbia, American Samoa, and Guam) had significantly fewer than 50 percent of students performing at least at the *Basic* level in math.

Science. Long-term trends in science performance have been mixed, though changes over the past 10 years have been generally positive. In 1999, science performance among 17-year-olds was lower than in 1969, but higher than in 1990. The science performance of 13-year-olds in 1999 was about the same as in 1970 and in 1990. The science performance of 9-year-olds increased between 1970 and 1999, but there was no significant difference between 1990 and 1999.

International comparisons. The Third International Mathematics and Science Study–Repeat (TIMSS–R), which was conducted in 1999 (4 years after the original TIMSS), focuses on the mathematics and science achievement of eighth-graders in 38 countries. In TIMSS–R, the international average score of the 38 participating countries was 487 in mathematics and 488 in science. In 1999, U.S. eighth-graders, on average, scored higher in both math-

[2]The NAEP achievement levels are set by NAGB. The *Basic* level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work, while the *Proficient* level represents solid academic performance.

ematics and science than the international average of the 38 countries. In mathematics, the average U.S. score was higher than the score in 17 countries, similar to the score in 6 countries, and lower than the score in 14 countries. In science, the average U.S. score was higher than the score in 18 countries, similar to the score in 5 countries, and lower than the score in 14 countries.

Postsecondary Education

College enrollment

Enrollment in degree-granting institutions hit a record level of 14.8 million in the fall of 1999, and another record of 15.3 million is expected for 2001. Enrollment is expected to increase by an additional 16 percent between 2001 and 2011. Despite decreases in the traditional college-age population during the 1980s and early 1990s, total enrollment increased because of the high enrollment rate of older women and recent high school graduates. Between 1990 and 1999, the number of full-time students increased by 12 percent compared to no increase in part-time students.

Faculty and staff

In the fall of 1999, there were 1,028,000 faculty members in degree-granting institutions. Making up this figure were 591,000 full-time and 437,000 part-time faculty. In 1998, full-time instructional faculty and staff generally taught more hours and more students than did their part-time counterparts, with 21 percent of full-time instructional faculty and staff teaching 15 or more hours per week and 13 percent teaching 150 or more students. About 9 percent of part-time instructional faculty and staff taught 15 or more hours per week, and 4 percent taught 150 or more students.

White males constituted a disproportionate share of full-time college faculty in 1999. Overall, about 54 percent of full-time faculty were White males. However, this distribution varied substantially by rank of faculty. Among full professors, the proportion of White males was 71 percent. The proportion was somewhat lower among the lower ranked faculty, with White males making up 40 percent of the lecturers.

Graduates, Degrees, and Attainment

The estimated number of high school graduates in 2000–01 totaled 2.8 million. Approximately 2.5 million graduated from public schools, and 0.3 million graduated from private schools. The number of high school graduates has declined from its peak in 1976–77, when 3.2 million students earned diplomas. In contrast, the number of General Educational Development (GED) credentials issued rose from 331,000 in 1977 to 501,000 in 2000. The dropout rate also declined over this period, from 14 percent of all 16- to 24-year-olds in 1977 to 11 percent in 2000. Much of the decrease occurred between 1977 and 1990. The number of postsecondary degrees conferred during the 2000–01 school year by degree level has been projected: 562,000 associate's degrees; 1,209,000 bachelor's degrees; 428,000 master's degrees; 81,900 first-professional degrees; and 46,700 doctor's degrees (table C).

The U.S. Census Bureau collects annual statistics on the educational attainment of the population. Between 1990 and 2000, the proportion of the adult population 25 years of age and over who had completed high school rose from 78 percent to 84 percent, and the proportion of adults with a bachelor's degree increased from 21 percent to 26 percent. Over the same period, the proportion of young adults (25- to 29-year-olds) completing high school showed a small increase of about 2 percentage points, to 88 percent in 2000, and the proportion completing bachelor's degrees rose from 23 percent to 29 percent (table D).

Education Expenditures

Expenditures for public and private education, from kindergarten through graduate school (excluding postsecondary schools not awarding associate's or higher degrees), are estimated at $700 billion for 2000–01. The expenditures of elementary and secondary schools are expected to total $423 billion for 2000–01, while those of colleges and universities are expected to total $277 billion. The total expenditures for education are expected to amount to 7.1 percent of the gross domestic product in 2000–01, about the same percentage as in the recent past.

Data sources: Over 50 sources of data, including most NCES studies.

For technical information, see the complete report:

Snyder, T.D., and Hoffman, C.M. (2002). *Digest of Education Statistics: 2001* (NCES 2002–130).

Author affiliations: T.D. Snyder and C.M. Hoffman, NCES.

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To obtain the complete report (NCES 2002–130), call the toll free ED Pubs number (877–433–7827), visit the NCES Web Site (http://nces.ed.gov), or contact GPO (202–512–1800).

Table C.—Earned degrees conferred by degree-granting institutions, by level of degree and sex of student: 1959–60 to 2010–11

Year	Associate's degrees			Bachelor's degrees			Master's degrees			First-professional degrees			Doctor's degrees[1]		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1959–60	—	—	—	[2]392,440	[2]254,063	[2]138,377	74,435	50,898	23,537	([3])	([3])	([3])	9,829	8,801	1,028
1960–61	—	—	—	365,174	224,538	140,636	84,609	57,830	26,779	25,253	24,577	676	10,575	9,463	1,112
1961–62	—	—	—	383,961	230,456	153,505	91,418	62,603	28,815	25,607	24,836	771	11,622	10,377	1,245
1962–63	—	—	—	411,420	241,309	170,111	98,684	67,302	31,382	26,590	25,753	837	12,822	11,448	1,374
1963–64	—	—	—	461,266	265,349	195,917	109,183	73,850	35,333	27,209	26,357	852	14,490	12,955	1,535
1964–65	—	—	—	493,757	282,173	211,584	121,167	81,319	39,848	28,290	27,283	1,007	16,467	14,692	1,775
1965–66	111,607	63,779	47,828	520,115	299,287	220,828	140,602	93,081	47,521	30,124	28,982	1,142	18,237	16,121	2,116
1966–67	139,183	78,356	60,827	558,534	322,711	235,823	157,726	103,109	54,617	31,695	30,401	1,294	20,617	18,163	2,454
1967–68	159,441	90,317	69,124	632,289	357,682	274,607	176,749	113,552	63,197	33,939	32,402	1,537	23,089	20,183	2,906
1968–69	183,279	105,661	77,618	728,845	410,595	318,250	193,756	121,531	72,225	35,114	33,595	1,519	26,158	22,722	3,436
1969–70	206,023	117,432	88,591	792,316	451,097	341,219	208,291	125,624	82,667	34,918	33,077	1,841	29,866	25,890	3,976
1970–71	252,311	144,144	108,167	839,730	475,594	364,136	230,509	138,146	92,363	37,946	35,544	2,402	32,107	27,530	4,577
1971–72	292,014	166,227	125,787	887,273	500,590	386,683	251,633	149,550	102,083	43,411	40,723	2,688	33,363	28,090	5,273
1972–73	316,174	175,413	140,761	922,362	518,191	404,171	263,371	154,468	108,903	50,018	46,489	3,529	34,777	28,571	6,206
1973–74	343,924	188,591	155,333	945,776	527,313	418,463	277,033	157,842	119,191	53,816	48,530	5,286	33,816	27,365	6,451
1974–75	360,171	191,017	169,154	922,933	504,841	418,092	292,450	161,570	130,880	55,916	48,956	6,960	34,083	26,817	7,266
1975–76	391,454	209,996	181,458	925,746	504,925	420,821	311,771	167,248	144,523	62,649	52,892	9,757	34,064	26,267	7,797
1976–77	406,377	210,842	195,535	919,549	495,545	424,004	317,164	167,783	149,381	64,359	52,374	11,985	33,232	25,142	8,090
1977–78	412,246	204,718	207,528	921,204	487,347	433,857	311,620	161,212	150,408	66,581	52,270	14,311	32,131	23,658	8,473
1978–79	402,702	192,091	210,611	921,390	477,344	444,046	301,079	153,370	147,709	68,848	52,652	16,196	32,730	23,541	9,189
1979–80	400,910	183,737	217,173	929,417	473,611	455,806	298,081	150,749	147,332	70,131	52,716	17,415	32,615	22,943	9,672
1980–81	416,377	188,638	227,739	935,140	469,883	465,257	295,739	147,043	148,696	71,956	52,792	19,164	32,958	22,711	10,247
1981–82	434,526	196,944	237,582	952,998	473,364	479,634	295,546	145,532	150,014	72,032	52,223	19,809	32,707	22,224	10,483
1982–83	449,620	203,991	245,629	969,510	479,140	490,370	289,921	144,697	145,224	73,054	51,250	21,804	32,775	21,902	10,873
1983–84	452,240	202,704	249,536	974,309	482,319	491,990	284,263	143,595	140,668	74,468	51,378	23,090	33,209	22,064	11,145
1984–85	454,712	202,932	251,780	979,477	482,528	496,949	286,251	143,390	142,861	75,063	50,455	24,608	32,943	21,700	11,243
1985–86	446,047	196,166	249,881	987,823	485,923	501,900	288,567	143,508	145,059	73,910	49,261	24,649	33,653	21,819	11,834
1986–87	436,304	190,839	245,465	991,264	480,782	510,482	289,349	141,269	148,080	71,617	46,523	25,094	34,041	22,061	11,980
1987–88	435,085	190,047	245,038	994,829	477,203	517,626	299,317	145,163	154,154	70,735	45,484	25,251	34,870	22,615	12,255
1988–89	436,764	186,316	250,448	1,018,755	483,346	535,409	310,621	149,354	161,267	70,856	45,046	25,810	35,720	22,648	13,072
1989–90	455,102	191,195	263,907	1,051,344	491,696	559,648	324,301	153,653	170,648	70,988	43,961	27,027	38,371	24,401	13,970
1990–91	481,720	198,634	283,086	1,094,538	504,045	590,493	337,168	156,482	180,686	71,948	43,846	28,102	39,294	24,756	14,538
1991–92	504,231	207,481	296,750	1,136,553	520,811	615,742	352,838	161,842	190,996	74,146	45,071	29,075	40,659	25,557	15,102
1992–93	514,756	211,964	302,792	1,165,178	532,881	632,297	369,585	169,258	200,327	75,387	45,153	30,234	42,132	26,073	16,059
1993–94	530,632	215,261	315,371	1,169,275	532,422	636,853	387,070	176,085	210,985	75,418	44,707	30,711	43,185	26,552	16,633
1994–95	539,691	218,352	321,339	1,160,134	526,131	634,003	397,629	178,598	219,031	75,800	44,853	30,947	44,446	26,916	17,530
1995–96	555,216	219,514	335,702	1,164,792	522,454	642,338	406,301	179,081	227,220	76,734	44,748	31,986	44,652	26,841	17,811
1996–97	571,226	223,948	347,278	1,172,879	520,515	652,364	419,401	180,947	238,454	78,730	45,564	33,166	45,876	27,146	18,730
1997–98	558,555	217,613	340,942	1,184,406	519,956	664,450	430,164	184,375	245,789	78,598	44,911	33,687	46,010	26,664	19,346
1998–99	559,954	218,417	341,537	1,200,303	518,746	681,557	439,986	186,148	253,838	78,439	44,339	34,100	44,077	25,146	18,931
1999–2000	564,933	224,721	340,212	1,237,875	530,367	707,508	457,056	191,792	265,264	80,057	44,239	35,818	44,808	25,028	19,780
2000–01[4]	562,000	214,000	348,000	1,209,000	524,000	685,000	428,000	178,000	250,000	81,900	44,700	37,200	46,700	26,900	19,800
2001–02[4]	569,000	216,000	353,000	1,227,000	529,000	698,000	432,000	179,000	253,000	80,400	44,000	36,400	46,500	26,500	20,000
2002–03[4]	574,000	217,000	357,000	1,241,000	527,000	714,000	436,000	180,000	256,000	80,400	43,600	36,800	46,700	26,600	20,100
2003–04[4]	582,000	218,000	364,000	1,251,000	535,000	716,000	442,000	181,000	261,000	81,300	43,900	37,400	47,100	26,700	20,400
2004–05[4]	587,000	219,000	368,000	1,275,000	538,000	737,000	448,000	182,000	266,000	82,300	44,100	38,200	47,500	26,900	20,600
2005–06[4]	594,000	220,000	374,000	1,294,000	544,000	750,000	453,000	183,000	270,000	83,500	44,400	39,100	47,800	27,000	20,800
2006–07[4]	600,000	221,000	379,000	1,318,000	549,000	769,000	458,000	184,000	274,000	84,700	44,900	39,800	48,100	27,100	21,000
2007–08[4]	605,000	222,000	383,000	1,337,000	553,000	784,000	464,000	186,000	278,000	85,700	45,200	40,500	48,400	27,200	21,200
2008–09[4]	611,000	223,000	388,000	1,355,000	558,000	797,000	468,000	187,000	281,000	86,500	45,400	41,100	48,700	27,400	21,300
2009–10[4]	617,000	224,000	393,000	1,373,000	562,000	811,000	472,000	188,000	284,000	87,500	45,800	41,700	48,800	27,500	21,300
2010–11[4]	625,000	226,000	399,000	1,392,000	568,000	824,000	477,000	190,000	287,000	88,300	46,100	42,200	49,100	27,600	21,500

—Not available.

[1]Includes Ph.D., Ed.D., and comparable degrees at the doctoral level. Excludes first-professional degrees, such as M.D., D.D.S., and law degrees.

[2]Includes first-professional degrees.

[3]First-professional degrees are included with bachelor's degrees.

[4]Projected.

NOTE: Data for 1959–60 to 1994–95 are for institutions of higher education. Institutions of higher education were accredited by an agency or association that was recognized by the U.S. Department of Education, or recognized directly by the Secretary of Education. The new degree-granting classification is very similar to the earlier higher education classification, except that it includes some additional institutions, primarily 2-year colleges, and excludes a few higher education institutions that did not award associate's or higher degrees. Data for 1998–99 were imputed using alternative procedures. Some data have been revised from previously published figures. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics: *Projections of Education Statistics to 2011* (NCES 2001–083), chapter 4, "Earned Degrees Conferred"; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys; and Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C). (This table was prepared August 2001.) (Taken from table 247 on p. 293 of the complete report from which this article is excerpted. Table 247 also contains data for earlier years.)

Table D.—Years of school completed by persons age 25 and over and 25 to 29, by race/ethnicity and sex: 1960 to 2000

Age and year	Percent, by years of school completed											
	All races			White, non-Hispanic[1]			Black, non-Hispanic[1]			Hispanic		
	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]
	Males and females											
25 and over												
April 1960	8.3	41.1	7.7	6.7	43.2	8.1	23.5	21.7	3.5	—	—	—
March 1970	5.3	55.2	11.0	4.2	57.4	11.6	14.7	36.1	6.1	—	—	—
March 1980	3.4	68.6	17.0	1.9	71.9	18.4	9.1	51.4	7.9	15.8	44.5	7.6
March 1985	2.7	73.9	19.4	1.4	77.5	20.8	6.1	59.9	11.1	13.5	47.9	8.5
March 1989	2.5	76.9	21.1	1.2	80.7	22.8	5.2	64.7	11.7	12.2	50.9	9.9
March 1990	2.5	77.6	21.3	1.1	81.4	23.1	5.1	66.2	11.3	12.3	50.8	9.2
March 1991	2.4	78.4	21.4	1.1	82.4	23.3	4.7	66.8	11.5	12.5	51.3	9.7
March 1992	2.1	79.4	21.4	0.9	83.4	23.2	3.9	67.7	11.9	11.8	52.6	9.3
March 1993	2.1	80.2	21.9	0.8	84.1	23.8	3.7	70.5	12.2	11.8	53.1	9.0
March 1994	1.9	80.9	22.2	0.8	84.9	24.3	2.7	73.0	12.9	10.8	53.3	9.1
March 1995	1.9	81.7	23.0	0.7	85.9	23.4	2.5	73.8	13.3	10.6	53.4	9.3
March 1996	1.8	81.7	23.6	0.6	86.0	25.9	2.2	74.6	13.8	10.4	53.1	9.3
March 1997	1.7	82.1	23.9	0.6	86.3	26.2	2.0	75.3	13.3	9.4	54.7	10.3
March 1998	1.7	82.8	24.4	0.6	87.1	26.6	1.7	76.4	14.8	9.3	55.5	11.0
March 1999	1.6	83.4	25.2	0.6	87.7	27.7	1.8	77.4	15.5	9.0	56.1	10.9
March 2000	1.6	84.1	25.6	0.5	88.4	28.1	1.6	78.9	16.6	8.7	57.0	10.6
25 to 29												
April 1960	2.8	60.7	11.0	2.2	63.7	11.8	7.2	38.6	5.4	—	—	—
March 1970	1.1	75.4	16.4	0.9	77.8	17.3	2.2	58.4	10.0	—	—	—
March 1980	0.8	85.4	22.5	0.3	89.2	25.0	0.7	76.7	11.6	6.7	58.0	7.7
March 1985	0.7	86.1	22.2	0.2	89.5	24.4	0.4	80.5	11.6	6.0	60.9	11.1
March 1989	1.0	85.5	23.4	0.3	89.3	26.3	0.5	82.3	12.7	5.4	61.0	10.1
March 1990	1.2	85.7	23.2	0.3	90.1	26.4	1.0	81.7	13.4	7.3	58.2	8.2
March 1991	1.0	85.4	23.2	0.3	89.8	26.7	0.5	81.8	11.0	5.8	56.7	9.2
March 1992	0.9	86.3	23.6	0.3	90.7	27.2	0.8	80.9	11.1	5.2	60.9	9.5
March 1993	0.7	86.7	23.7	0.3	91.2	27.2	0.2	82.7	13.3	4.0	60.9	8.3
March 1994	0.8	86.1	23.3	0.3	91.1	27.1	0.6	84.1	13.6	3.6	60.3	8.0
March 1995	1.0	86.9	24.7	0.3	92.5	28.8	0.2	86.7	15.4	4.9	57.2	8.9
March 1996	0.8	87.3	27.1	0.2	92.6	31.6	0.4	86.0	14.6	4.3	61.1	10.0
March 1997	0.8	87.4	27.8	0.1	92.9	32.6	0.6	86.9	14.2	4.2	61.8	11.0
March 1998	0.7	88.1	27.3	0.1	93.6	32.3	0.4	88.3	15.8	3.7	62.8	10.4
March 1999	0.6	87.8	28.2	0.1	93.0	33.6	0.2	88.7	15.0	3.2	61.6	8.9
March 2000	0.7	88.1	29.1	0.1	94.0	34.0	—	86.8	17.8	3.8	62.8	9.7

See footnotes on second page of this table.

Table D.—Years of school completed by persons age 25 and over and 25 to 29, by race/ethnicity and sex: 1960 to 2000—Continued

Age and year	Percent, by years of school completed											
	All races			White, non-Hispanic[1]			Black, non-Hispanic[1]			Hispanic		
	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]	Less than 5 years of elementary school	High school completion or higher[2]	4 or more years of college[3]
Males												
25 and over												
April 1960	9.4	39.5	9.7	7.4	41.6	10.3	27.7	20.0	3.5	—	—	—
March 1970	5.9	55.0	14.1	4.5	57.2	15.0	17.9	35.4	6.8	—	—	—
March 1980	3.6	69.2	20.9	2.0	72.4	22.8	11.3	51.2	7.7	16.5	44.9	9.2
March 1990	2.7	77.7	24.4	1.3	81.6	26.7	6.4	65.8	11.9	12.9	50.3	9.8
March 1994	2.1	81.1	25.1	0.8	85.1	27.8	3.9	71.8	12.7	11.4	53.4	9.6
March 1995	2.0	81.7	26.0	0.8	86.0	28.9	3.4	73.5	13.7	10.8	52.9	10.1
March 1996	1.9	81.9	26.0	0.7	86.1	28.8	2.9	74.6	12.5	10.2	53.0	10.3
March 1997	1.8	82.0	26.2	0.6	86.3	29.0	2.9	73.8	12.5	9.2	54.9	10.6
March 1998	1.7	82.8	26.5	0.7	87.1	29.3	2.3	75.4	14.0	9.3	55.7	11.1
March 1999	1.6	83.5	27.5	0.6	87.7	30.6	2.1	77.2	14.3	9.0	56.0	10.7
March 2000	1.6	84.2	27.8	0.6	88.5	30.8	2.1	79.1	16.4	8.2	56.6	10.7
Females												
25 and over												
April 1960	7.4	42.5	5.8	6.0	44.7	6.0	19.7	23.1	3.6	—	—	—
March 1970	4.7	55.4	8.2	3.9	57.7	8.6	11.9	36.6	5.6	—	—	—
March 1980	3.2	68.1	13.6	1.8	71.5	14.4	7.4	51.5	8.1	15.3	44.2	6.2
March 1990	2.2	77.5	18.4	1.0	81.3	19.8	4.1	66.5	10.8	11.7	51.3	8.7
March 1994	1.7	80.8	19.6	0.7	84.7	21.1	1.8	73.9	13.1	10.3	53.2	8.6
March 1995	1.7	81.6	20.2	0.6	85.8	22.2	1.8	74.1	13.0	10.4	53.8	8.4
March 1996	1.7	81.6	21.4	0.5	85.9	23.2	1.6	74.6	14.8	10.6	53.3	8.3
March 1997	1.6	82.2	21.7	0.5	86.3	23.7	1.3	76.5	14.0	9.5	54.6	10.1
March 1998	1.6	82.9	22.4	0.6	87.1	24.1	1.2	77.1	15.5	9.2	55.3	10.9
March 1999	1.6	83.4	23.1	0.5	87.7	25.0	1.5	77.5	16.5	9.0	56.3	11.0
March 2000	1.5	84.0	23.6	0.4	88.4	25.5	1.1	78.7	16.8	9.3	57.5	10.6

—Not available.

[1]Includes persons of Hispanic origin for years prior to 1980.

[2]Data for years prior to 1993 include all persons with at least 4 years of high school.

[3]Data for 1993 and later years are for persons with a bachelor's or higher degree.

NOTE: Data for 1980 and subsequent years are for the noninstitutionalized population.

SOURCE: U.S. Department of Commerce, Bureau of the Census: *U.S. Census of Population: 1960*, Volume 1, part 1; *Current Population Reports*, series P-20 and unpublished data; and *Education of the American Population* (1960 Census Monograph by John K. Folger and Charles B. Nam). (This table was prepared April 2001.) (Taken from table 8 on p.17 of the complete report from which this article is excerpted. Table 8 also contains data for earlier years.)

Invited Commentary: A 40-Year Perspective on the *Digest of Education Statistics*

W Vance Grant, *Senior Specialist in Education Statistics, National Library of Education*

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Historical Development of the *Digest*

Most of the statistical information collected by the U.S. Office of Education[1] from 1918 to 1958 was published in the *Biennial Survey of Education in the United States*. The *Biennial Survey* was thus a valuable resource for researchers, planners, and others interested in the field of education statistics. With the demise of the *Biennial Survey* following the publication of the 1958 edition, there was no longer a document that summarized the data produced by the Division of Educational Statistics.[2] By 1962, the need for such a document was apparent to a number of thoughtful people in the Office of Education.

At a meeting in his office in July 1962, Ralph C.M. Flynt provided the impetus that led to the development of the first *Digest of Education Statistics*.[3] Mr. Flynt was the Associate Commissioner for Educational Research and Development, a man of long tenure and high standing in the Office of Education. He directed us to prepare *during the next 6 weeks* a "handbook" of statistics that would be useful for research, legislative, and general information purposes. He envisioned a publication of some dignity and stature, one that would reflect credit upon the Office as well as provide a useful source of information. One of his suggestions was that the handbook should have a maroon cover. (In this respect he was destined to be disappointed in the outcome: the first *Digest* came back from the printer with a bright yellow cover.)

Work on the new handbook began almost immediately in order to meet Mr. Flynt's timetable. The responsibility was assigned to the Reference, Estimates, and Projections Section, where the project benefited greatly from the able direction of the section chief, Kenneth A. Simon. Dr. Simon provided the excellent leadership needed to keep the work moving smoothly, and it was he who chose the name for the new publication. Staff members assigned to the *Digest* were relieved of most of their other responsibilities during the developmental phase of the project. The manuscript was completed on schedule: it contained 82 tables, six figures, and a concise introduction to each of its four chapters. The camera-ready copy for the first *Digest* was prepared "in house," and the report was published by the U.S. Department of Health, Education, and Welfare in October 1962.

The new *Digest* summarized the major items that had been collected by the Office of Education through the years. In one convenient source it provided data on the number of schools, students, staff, and graduates, as well as on the revenues and expenditures of educational institutions. The demand for the new publication was so great that the initial supply was soon exhausted. It was reprinted in December 1962 and offered for sale at $1.00 a copy by the U.S. Government Printing Office (GPO). (GPO has continued to stock the publication through the years. It has frequently appeared on the GPO list of bestsellers, and a substantial number of copies continue to be sold, at a price of $50.00 a copy for the 2001 edition.)

The *Digest* expanded during the 1960s and 1970s, but at a relatively modest pace. A conscious effort was made to reach out and bring in materials from other agencies that would add to the usefulness of the publication. The U.S. Census Bureau, with its data on the educational attainment of the population, the social and economic characteristics of students, and the education expenditures of state and local governments, was a prime source for additional statistics that found their way into the *Digest*. Among the other organizations that provided data for the 1980 edition were the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, the National Science Foundation, the National Academy of Sciences, the College Entrance Examination Board, the Institute of International Education, the National Education Association, the National Catholic Educational Association, and the Cooperative Institutional Research Program, sponsored by the American Council on Education and administered by the Graduate School of Education at the University of California at Los Angeles.

[1] The Office of Education was part of the U.S. Department of Health, Education, and Welfare from 1953 until 1980, when the U.S. Department of Education was established. Earlier, the Office of Education had been in the Federal Security Agency and the U.S. Department of the Interior.

[2] The Division of Educational Statistics was the forerunner of the National Center for Education Statistics.

[3] Prior to 1975, the publication was called *Digest of Educational Statistics*.

With its six chapters, 200 tables, and 14 figures, the 1980 *Digest* was still less than half the size of recent editions. Major expansion of the *Digest* since the late 1980s has turned a good publication into a great one. While it still contains the standard items that users of education statistics continue to find very useful, a great deal of new material has significantly enhanced its value. The *Digest* now accomplishes much more than merely summarizing the data from other publications. It is also the primary source for a substantial amount of information not found elsewhere. For example, it provides detailed information for each state and a considerable amount of data for individual colleges and universities and for large school districts. The 2001 edition of the *Digest*, which made its appearance on the World Wide Web on March 1, 2002, contains seven chapters, 430 tables, and 33 figures. It also devotes considerable attention to data sources and definitions of terms, and it provides caveats that guide users in interpreting the data.

Characteristics and Uses of the *Digest*

Recent editions of the *Digest* reflect some of the major concerns of the National Center for Education Statistics (NCES) in the 21st century. NCES is interested in how students progress through the education system, how many drop out along the way, and how many stay in school and graduate from high school and college. One way NCES measures student persistence is through longitudinal surveys that track representative samples of students through high school and postsecondary education. NCES is also increasingly concerned with qualitative as well as quantitative analyses of American education. The National Assessment of Educational Progress (NAEP) provides data over time on how well students in elementary and secondary schools are doing in such subjects as reading, writing, mathematics, and science. International tests of reading, mathematics, and science enable one to compare American students with young people in countries around the world. The *Digest* serves as a readily accessible resource for these kinds of data.

The users of the statistics in the *Digest* are a diverse group. Members of Congress and their staffs use the data to plan federal education programs and to serve the needs of their constituents. Federal agencies, such as the U.S. Department of Defense, the U.S. Department of Labor, and the National Science Foundation, look for information on the supply of trained manpower coming out of schools and colleges, and also for data on the courses of study being taught there. Education officials at the state and local levels seek background information to deal with the problems of staffing and financing public schools. Education organizations, such as the American Council on Education, the American Federation of Teachers, and the National Education Association, use the data for planning and research. The news media, including the national television networks, the national news magazines, and some of the nation's leading daily newspapers, use the statistics to inform the public about such matters as trends in NAEP test scores, dropout rates, expenditures per pupil in public schools, and costs of attending college. Business organizations use trend data on enrollments and expenditures to forecast the demand for their products. Members of the general public use the data to become more informed citizens and to make intelligent decisions concerning the education issues of the day.

What accounts for the success of the *Digest*, and why is it so widely used today? Part of the answer, no doubt, is the fact that it reflects a prodigious amount of high-quality work. Putting together the *Digest* is an awesome responsibility, and when one reviews the manuscript with its hundreds of pages each year, one sometimes wonders how this responsibility is so capably met. Each edition seems to expand and improve upon the one that went before it. Certainly the increased use of computers helps to expedite the process, but much more than computer literacy is involved. For a number of years, the *Digest* was produced in the old Statistical Information Branch, headed by a peerless and dynamic leader, Dr. Forrest W. Harrison. The Statistical Information Branch had the dual responsibilities of preparing the *Digest* (along with two other major publications[4]) and disseminating data to the many users of education statistics. Thus, staff working on the *Digest* were exposed to the kinds of questions that real people ask about American education. The *Digest* continues to respond admirably to such questions by emphasizing the kinds of data that users really need.

Among the qualities that enhance the usefulness of the *Digest* are clarity, comparability, and consistency. Recognizing that the *Digest* is essentially a reference work and that almost no one is going to sit down and read it from cover to cover, the authors construct each table with the user in mind. Each table conveys its message clearly and is designed to stand alone. Referring to the text that introduces each chapter or to other tables or figures may provide additional information, but is not a requisite for understanding a particular table. Comparability from one year to the next is a hallmark of the *Digest*, which provides the

[4]The Statistical Information Branch also prepared the *Projections of Education Statistics* and *The Condition of Education*.

same kinds of data year after year to meet the needs of those users who are looking at trends in American education. When there is an unavoidable break in a series, such as occurred when alterations were made in the universe of higher education institutions, the *Digest* highlights and explains the change that has occurred. Consistency within each annual report is achieved by clearly delineating the sources of data and by specifying the reasons why the statistics in one table may differ from those in another. For example, the statistics from the NCES Common Core of Data and the U.S. Census Bureau's Current Population Survey are not likely to be identical, and it is important for the user to know the source from which the data in a particular table came.

Conclusion

NCES and its predecessors have been collecting statistics on American education since 1870. From 1870 to 1917, the major published source for these data was the *Annual Report of the United States Commissioner of Education*. From 1918 to 1958, as previously mentioned, it was the *Biennial Survey of Education in the United States*. From 1962 to the present, the *Digest of Education Statistics* has served a similar function. It will be observed that the *Annual Reports* covered 47 years, and the *Biennial Surveys* were published for 40 years. The *Digest of Education Statistics* is about to celebrate its 40th birthday, and it has a good chance of outlasting its predecessors. I join many other users of education statistics in hoping that it will be around for many years to come.

Children's Reading and Mathematics Achievement in Kindergarten and First Grade
Kristin Denton and Jerry West 19

Children's Reading and Mathematics Achievement in Kindergarten and First Grade

Kristin Denton and Jerry West

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

Introduction

Children's experiences with school are almost as varied as children themselves. This report is the third in a series based on findings about young children's early experiences with school from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). Sponsored by the U.S. Department of Education, National Center for Education Statistics (NCES), ECLS-K selected a nationally representative sample of kindergartners in the fall of 1998 and is following these children through the spring of fifth grade. The study collects information directly from the children and from their families, teachers, and schools. The full ECLS-K base-year sample is comprised of approximately 22,000 children who attended about 1,000 kindergarten programs during the 1998–99 school year.

The first two reports, *America's Kindergartners* (West, Denton, and Germino-Hausken 2000) and *The Kindergarten Year* (West, Denton, and Reaney 2000), provided a national picture of the knowledge and skills of children at kindergarten entry and across the kindergarten year. Both reports revealed that while first-time kindergartners are similar in many ways, their knowledge and skills differ in relation to their age at school entry, race/ethnicity, health status, home educational experiences, and child care histories.

This report presents a picture of these children as first-graders.[1] The first two reports laid the foundation for a basic understanding of children's achievement across the kindergarten year. This report continues the story by providing information about children's knowledge and skills in the first-grade year. The report looks at children's school performance in terms of their reading and mathematical knowledge and skills. To address the multifaceted nature of children's development, this report relates children's reading and mathematical knowledge and skills to child, family, and school characteristics. Whereas a prior report (i.e., *The*

[1] First-graders refers to first-time kindergartners who were promoted to first grade in the fall of 1999.

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Kindergarten Year) specifically addressed the gains children made in reading and mathematics across the school year, this report focuses more on the status of children's reading and mathematics achievement in the spring of kindergarten and the spring of first-grade. Taking a broad view of child development, the report explores how children's literacy, approaches to learning, and general health status at kindergarten entry relate to their spring kindergarten and first-grade reading and mathematics knowledge and skills.

When conceptualizing literacy in young children, since young children's reading and mathematical ability are highly related, it is important to consider not only their reading skills but also their reading environment and their mathematical reasoning skills (West, Denton, and Germino-Hausken 2000; National Research Council 1989; National Institutes of Health 2000). Recognizing numbers (i.e., math skills) and recognizing letters (i.e., reading skills) both represent a child's ability to understand that symbols have meaning. Therefore, this report provides information on multiple aspects of children's early literacy, such as their ability to recognize letters, the frequency with which they are read to, and their ability to recognize numbers and shapes and to understand the relative size of objects.

Findings[2]

This section presents highlights of the findings. The report uses data from ECLS-K to address the following questions:

- What reading and mathematics knowledge and skills do children demonstrate in the spring of first grade? Do children's knowledge and skills differ by certain child, family, and school characteristics?
- What is the relationship of children's early literacy, approaches to learning, and general health status as they enter kindergarten to their spring kindergarten and first-grade reading and mathematics achievement? In particular, how do the resources listed below relate to children's spring kindergarten and spring first-grade achievement?
  - proficiency in recognizing letters,
  - being read to at least three times a week,
  - proficiency in recognizing numbers and basic shapes,
  - proficiency in the mathematical concept of relative size,
  - demonstrating a positive approach to learning often or very often, and
  - being in very good to excellent general health

What reading and mathematics knowledge and skills do children demonstrate in the spring of first grade? Do children's knowledge and skills differ by certain child, family, and school characteristics?

What children know. When children begin kindergarten, 67 percent recognize their letters. By the spring of kindergarten, most (95 percent) know the letters of the alphabet; and after 2 years of school, essentially all children (100 percent) can recognize the letters of the alphabet. At kindergarten entry, about one-third (31 percent) of children understand the letter-sound relationship at the beginning of words, and about one in six children (18 percent) understand the letter-sound relationship at the end of words. By the spring of kindergarten, about three-quarters (74 percent) of children make the letter-sound connection at the beginning of words, and just over half (54 percent) of children make this connection at the end of words. By the spring of first grade, almost all children have mastered these reading skills (98 and 94 percent, respectively) (figure A). By the spring of first grade, about five in six children (83 percent) recognize common words by sight (sight words), and about one-half (48 percent) of children understand words in context (compared to 14 and 4 percent, respectively, in the spring of kindergarten) (figure A).

By the spring of kindergarten, a large percentage (88 percent) of children understand the concept of relative size (e.g., can count beyond 10 and understand and can use nonstandard units of length to compare objects). By the spring of first grade, most children (96 percent) have mastered ordinality and sequence (the understanding of the relative position of objects), and about three-quarters (76 percent) demonstrate proficiency in adding and subtracting basic whole units. Moreover, by the spring of first grade, about one-quarter (27 percent) demonstrate proficiency in multiplying and dividing simple whole units (figure B).

[2]In an effort to provide information on the early education experiences of the typical child (i.e., one who spent 1 year in kindergarten and then continued on to first grade), the children included in the analysis entered kindergarten for the first time in the fall of 1998 and were promoted on time to first grade in the fall of 1999. Further, since this report provides information on children's early reading achievement, and the reading assessment was administered in English, the analyses in this report are limited to those children who were administered the English reading assessment. To achieve consistency in the sample across rounds (i.e., fall kindergarten, spring kindergarten, and spring first grade), the analyses in this report are limited to those children who were assessed in English in all three rounds of data collection.

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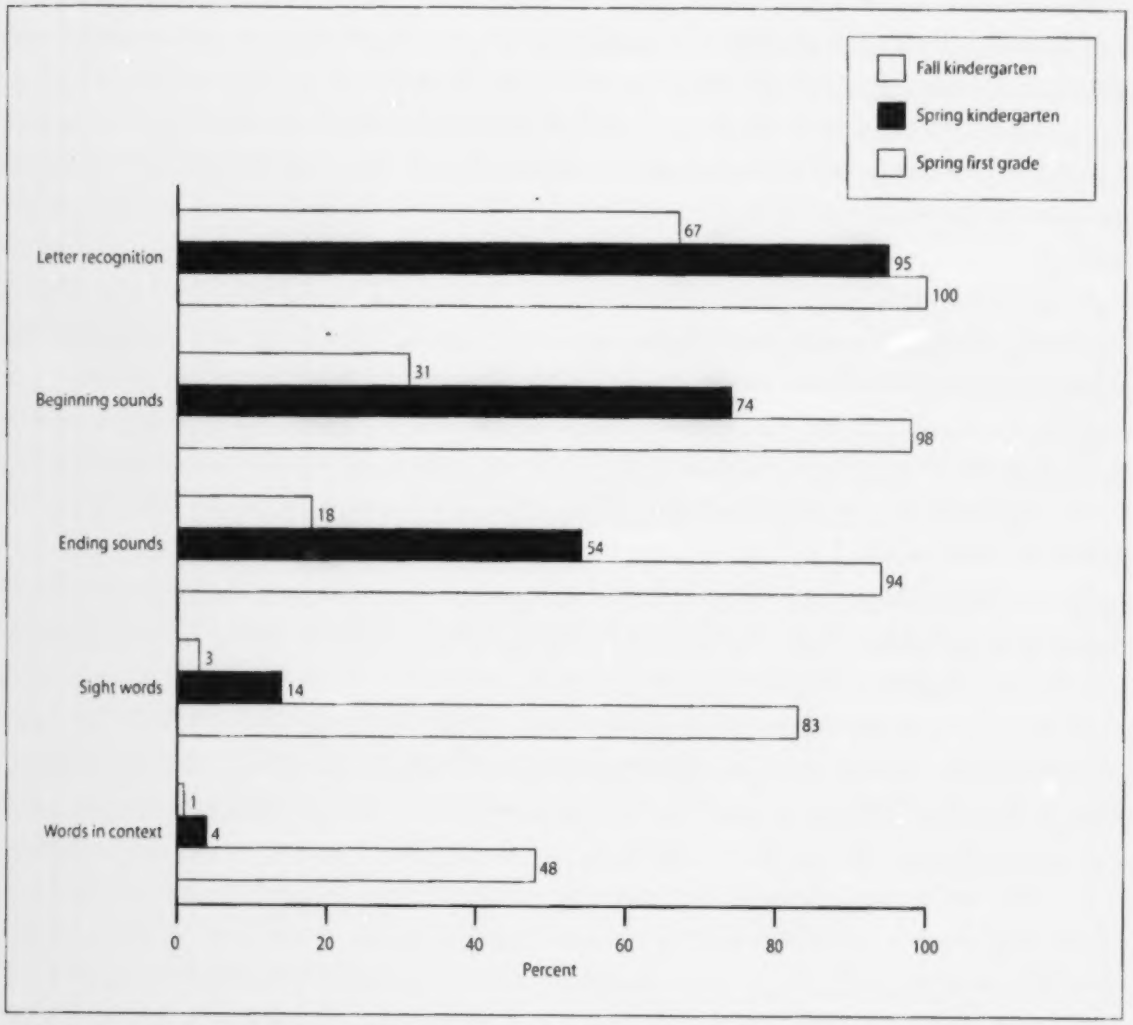
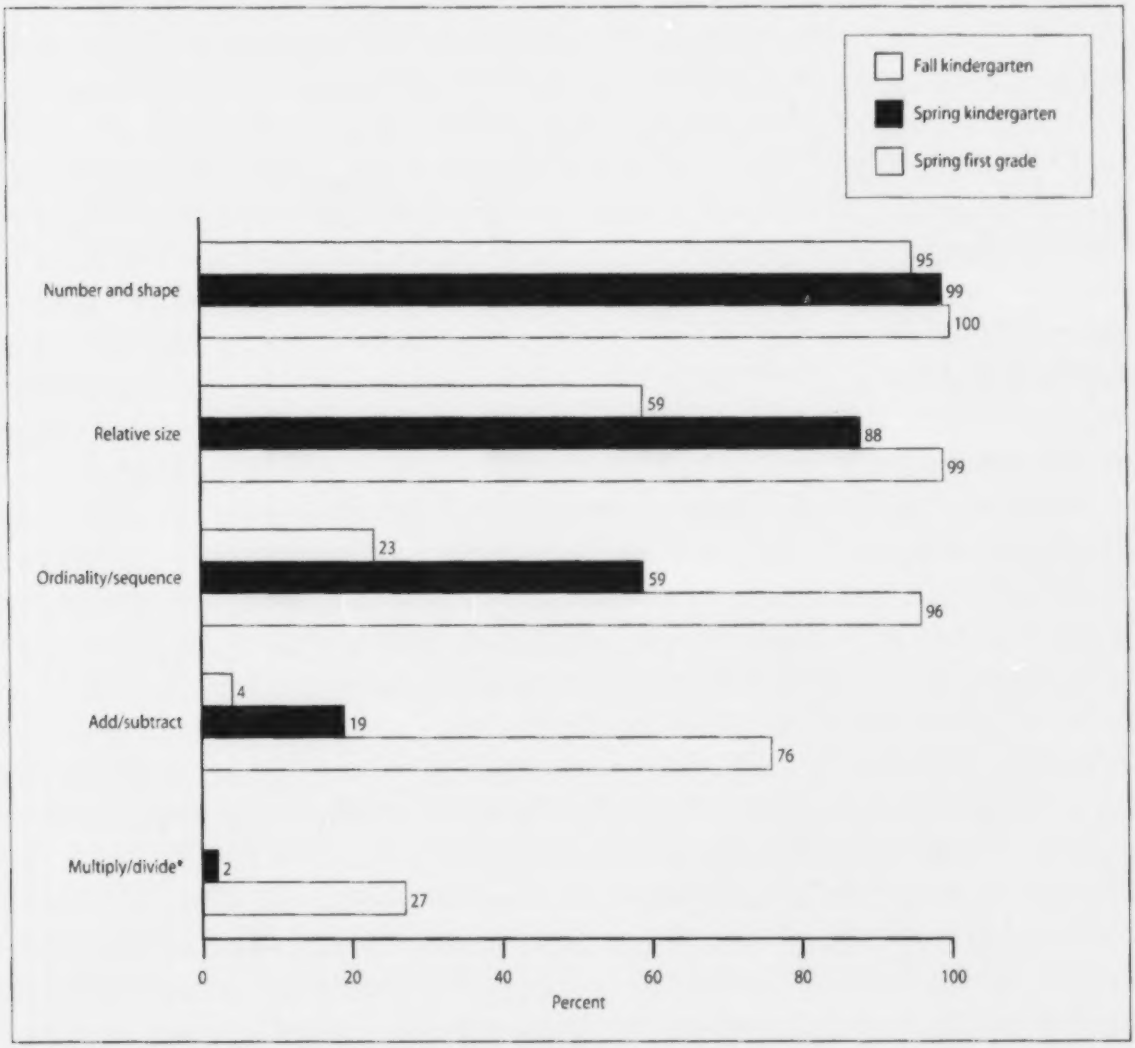
Figure A.—Percentage of children demonstrating specific reading knowledge and skills for fall kindergarten, spring kindergarten, and spring first grade: 1998–99 and 2000



NOTE: Estimates reflect children who were assessed in English in all three rounds of data collection and who entered kindergarten for the first time in the fall of 1998 and were promoted to first grade in the fall of 1999. The estimates in this report do not exactly match those found in previous reports based on the same data. This report uses a different weight in making the estimates, which is stricter in its response requirements and utilizes a slightly smaller sample of children.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Base-Year Public-Use and First-Grade Restricted-Use data files.

Figure B.—Percentage of children demonstrating specific mathematics knowledge and skills for fall kindergarten, spring kindergarten, and spring first grade: 1998–99 and 2000



*The fall kindergarten estimate for the percentage of children demonstrating proficiency in multiplication and division is less than .5 percent.

NOTE: Estimates reflect children who were assessed in English in all three rounds of data collection and who entered kindergarten for the first time in the fall of 1998 and were promoted to first grade in the fall of 1999. The estimates in this report do not exactly match those found in previous reports based on the same data. This report uses a different weight in making the estimates, which is stricter in its response requirements and utilizes a slightly smaller sample of children.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Base-Year Public-Use and First-Grade Restricted-Use data files.

What children know, by child, family, and school characteristics. Differences in children's achievement (as represented by their overall achievement score) by their family's poverty status, race/ethnicity, and school type persist from kindergarten through the spring of first grade. However, children's overall reading and mathematics achievement does not vary by their sex.

Differences (or lack of differences) in overall achievement scores only tell part of the story. Another way to think about how certain child and family characteristics relate to first-graders' spring achievement is in terms of children's acquisition of *specific* reading and mathematics knowledge and skills. Whether or not certain groups of children acquire certain skills or sets of skills may add meaning to an overall achievement score difference.

In terms of specific first-grade reading and mathematics skills and knowledge, females are more likely to recognize words by sight and understand words in context than males. Males and females are equally likely to be adding and subtracting; but, in the spring of first grade, males are more likely than females to solve problems that require multiplication and division. Simply stated, by the spring of first grade, females are more likely to be reading and males are more likely to be successful at advanced mathematical operations (i.e., multiplication and division).

When considering the poverty status of children's families from the kindergarten year, first-graders from nonpoor families are more likely to recognize words by sight than first-graders from poor families. The same is true for addition and subtraction. Moreover, about twice as many first-graders from nonpoor families are proficient at understanding words in context and performing multiplication and division as first-graders from poor families.

There are also differences by children's race/ethnicity. White children are more likely than Black or Hispanic children to recognize words by sight, understand words in context, solve addition and subtraction problems, and solve multiplication and division problems by the spring of first grade. Asian children are more likely than Black or Hispanic children to recognize words by sight, understand words in context, and solve multiplication and division problems. In the spring of first grade, Hispanic children are more likely than Black children to demonstrate proficiency in these particular reading and mathematics areas.

What is the relationship of children's early literacy, approaches to learning, and general health status as they enter kindergarten to their spring kindergarten and first-grade reading and mathematics achievement?

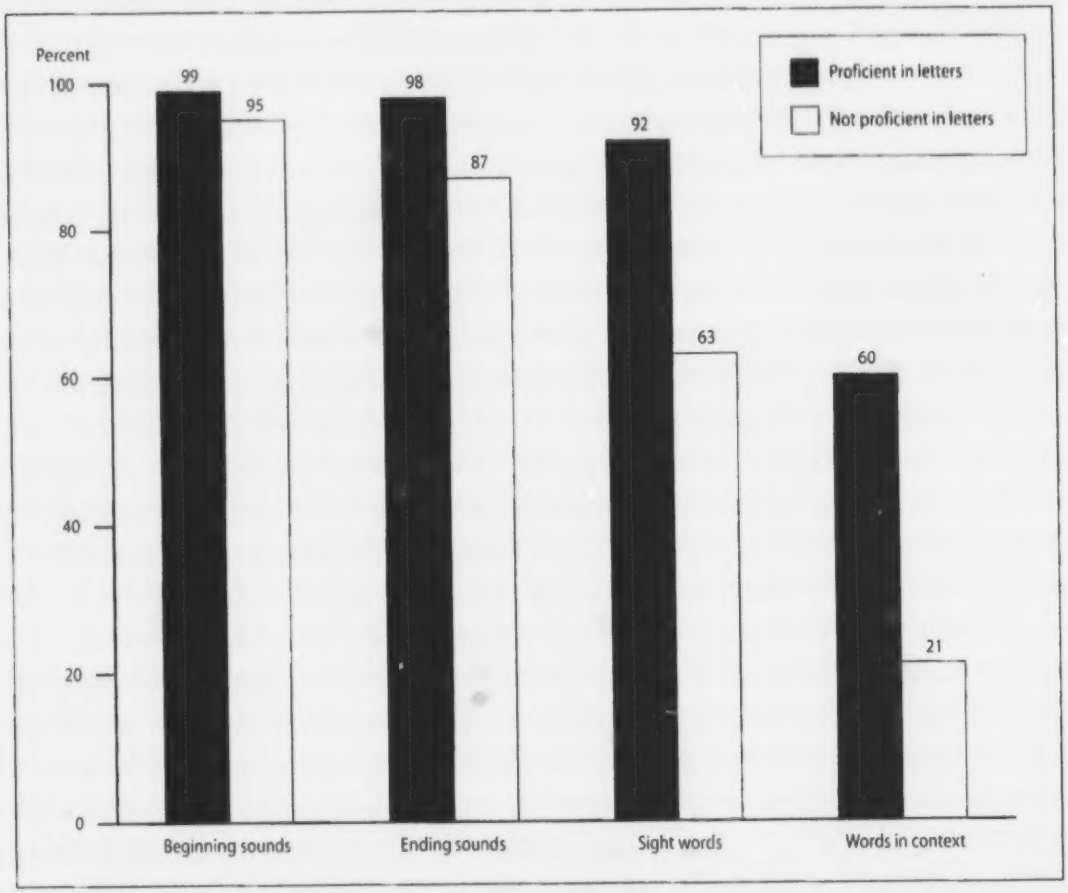
Children who recognize their letters, who are read to at least three times a week, who recognize their basic numbers and shapes, and who demonstrate an understanding of the mathematical concept of relative size as they enter kindergarten demonstrate significantly higher overall reading and mathematics knowledge and skills (in terms of an overall scale score) in the spring of kindergarten and the spring of first grade than children who do not have these resources. The same pattern is true for children who frequently demonstrate a positive approach to learning and who are in very good to excellent health as they enter kindergarten.

An analysis of the specific skills children acquire shows that children who recognize their letters, who are read to at least three times a week, who recognize their basic numbers and shapes, and who demonstrate an understanding of the mathematical concept of relative size as they enter kindergarten are more likely to understand the letter-sound relationship at the beginning and end of words, read words by sight, and understand words in context by the spring of first grade (figure C). In mathematics, children who recognize their letters, who are read to at least three times a week, who recognize their basic numbers and shapes, and who demonstrate an understanding of the mathematical concept of relative size as they enter kindergarten are more likely to understand the mathematical concept of ordinality and sequence, successfully solve addition and subtraction problems, and successfully solve multiplication and division problems. The same pattern is true for children who frequently demonstrate a positive approach to learning (figure D) and for those who are in very good to excellent health as they enter kindergarten.

Summary

Children begin kindergarten with different sets of knowledge and skills. Children's reading and mathematics knowledge and skills that differ by child, family, and school characteristics at the beginning of kindergarten persist into the spring of kindergarten and the spring of first grade. The findings in this report also suggest the beginnings of differences in children's reading and mathematics performance by their sex. By the spring of first grade, females are

Figure C.—Percentage of children demonstrating specific reading knowledge and skills in the spring of first grade by whether they were proficient in recognizing their letters at kindergarten entry: 2000



NOTE: Estimates reflect children who were assessed in English in all three rounds of data collection and who entered kindergarten for the first time in the fall of 1998 and were promoted to first grade in the fall of 1999. The estimates in this report do not exactly match those found in previous reports based on the same data. This report uses a different weight in making the estimates, which is stricter in its response requirements and utilizes a slightly smaller sample of children.

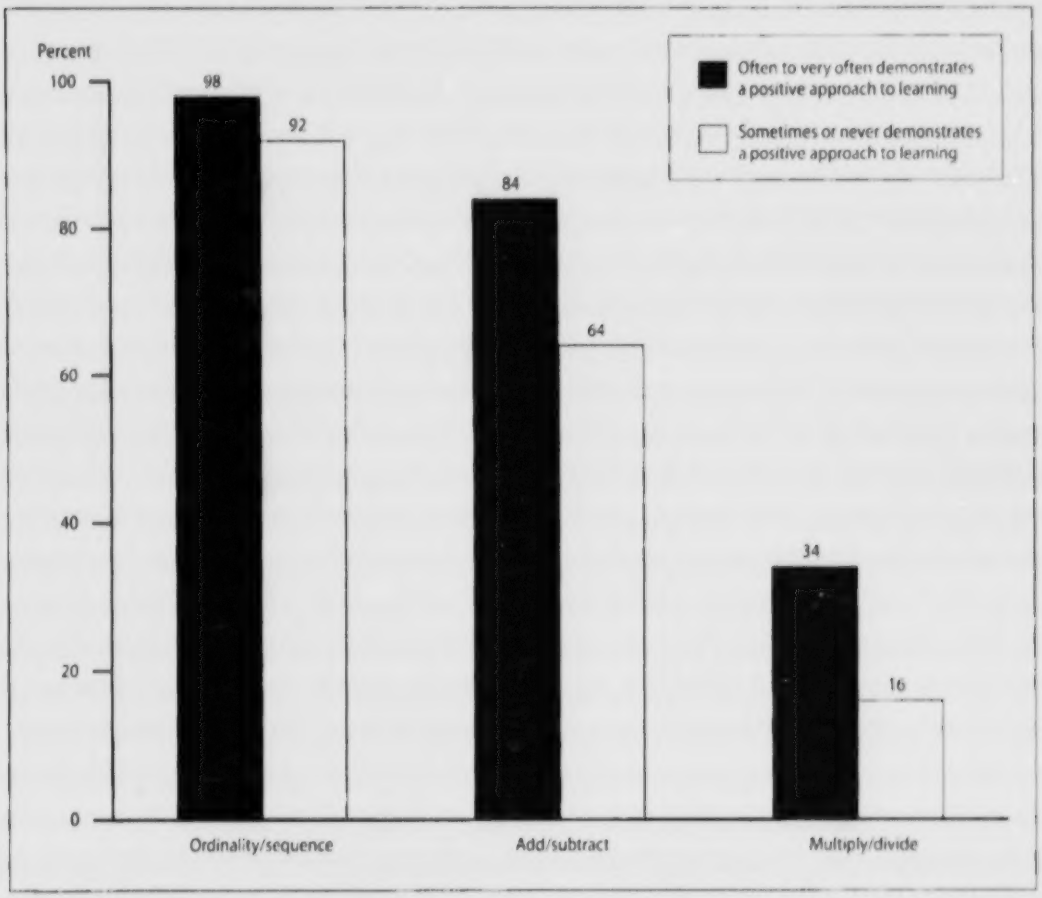
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Base-Year Public-Use and First-Grade Restricted-Use data files.

more likely to be reading, whereas males are more likely to be proficient at advanced mathematics (i.e., multiplication and division). The longitudinal nature of ECLS-K will enable researchers to track these differences in terms of children's third- and fifth-grade reading and mathematics performance.

Children who begin kindergarten with certain resources seem to be at an advantage. Children who demonstrate early literacy skills and who come from a positive literacy environment, who possess a positive approach to learning, and who enjoy very good or excellent general health seem to perform better after 1 and even 2 years of formal schooling than children who do not have these resources. Specifically, these children perform better in spring kindergarten and spring first-grade reading and mathematics.

This third report from ECLS-K, in conjunction with *America's Kindergartners* and *The Kindergarten Year*, provides descriptive information on young children's

Figure D.—Percentage of children demonstrating specific mathematics knowledge and skills in the spring of first grade by their approach to learning at kindergarten entry: 2000



NOTE: Estimates reflect children who were assessed in English in all three rounds of data collection and who entered kindergarten for the first time in the fall of 1998 and were promoted to first grade in the fall of 1999. The estimates in this report do not exactly match those found in previous reports based on the same data. This report uses a different weight in making the estimates, which is stricter in its response requirements and utilizes a slightly smaller sample of children.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Base-Year Public-Use and First-Grade Restricted-Use data files.

achievement across kindergarten and first grade. ECLS-K will continue to follow these children into the third and fifth grades. The study will provide researchers not only with an understanding of how children's early literacy, approaches to learning, and general health status at kindergarten entry shape their later achievement, but also of how these resources need to be maintained and further developed for continued scholastic success. The valuable information collected through this study will help us better understand the early education and elementary school experience of our nation's children.

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Data source: The NCES Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

For technical information, see the complete report:

Denton, K., and West, J. (2002). *Children's Reading and Mathematics Achievement in Kindergarten and First Grade* (NCES 2002–125).

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Fall Enrollment in Title IV Degree-Granting Postsecondary Institutions: 1998

Frank B. Morgan

This article was originally published as the Summary of the E.D. Tabs report of the same name. The universe data are from the Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF) and "Consolidated Survey" (IPEDS-CN).

Introduction

This report presents data on student enrollment in postsecondary education institutions in the 50 states and the District of Columbia for fall 1998. The data are from the Integrated Postsecondary Education Data System (IPEDS) of the National Center for Education Statistics (NCES).

Enrollment data were collected through two IPEDS surveys. The "Fall Enrollment Survey" (IPEDS-EF:98) was sent to all institutions that award associate's or higher level degrees or postbaccalaureate or higher level certificates. Postsecondary institutions that award only certificates or diplomas requiring less than 4 years to complete reported enrollment as part of their IPEDS "Consolidated Survey" (IPEDS-CN:98). Combining data from these two surveys provides a complete picture of enrollment in postsecondary education institutions in the 50 states, the District of Columbia, and the U.S. territories.

This report focuses on institutions that (1) have a Title IV Program Participation Agreement (PPA) with the U.S. Department of Education and thus are eligible to participate in Title IV programs,[1] (2) grant associate's or higher level degrees, and (3) are within the 50 states and the District of Columbia. Of the 9,355 postsecondary institutions within the 50 states and the District of Columbia identified by IPEDS, a little less than half (4,455) are categorized as degree-granting institutions. Of these, 4,015, or 90.1 percent, are Title IV institutions and form the basis for this report. Title IV of the Higher Education Act of 1965 (as amended) establishes federal financial aid programs

[1] In the remainder of this report, these are referred to as Title IV institutions.

(e.g., Pell Grants and Stafford Loans) for students attending postsecondary institutions. Students attending institutions with a PPA may be eligible either to receive Title IV funds or to defer repayment of their loans.

Characteristics of Enrolled Students

In the fall of 1998, 14.9 million students were enrolled in the 6,333 Title IV postsecondary institutions in the 50 states and the District of Columbia. Of these, 97.2 percent were enrolled in degree-granting institutions. Over three-fourths of the 14.9 million students attended public institutions. Of the students in Title IV public institutions, 98.3 percent attended degree-granting institutions and 1.7 percent were enrolled in non-degree-granting institutions. Nearly 21 percent of students in Title IV degree-granting institutions were enrolled in private not-for-profit institutions and 2.5 percent attended private for-profit institutions. Of those students enrolled in non-degree-granting institutions, 45.2 percent were enrolled in private for-profit institutions (table A).

About 3 percent of students enrolled in Title IV degree-granting postsecondary institutions were nonresident aliens (individuals who are in the United States on temporary visas). Of the remainder, 70.2 percent were White, non-Hispanic; 10.9 percent were Black, non-Hispanic; 8.7 percent were Hispanic; 6.2 percent were Asian/Pacific Islander; and 1.0 percent were American Indian/Alaska Native. With the exception of Asian/Pacific Islanders, minority[2] students represented a higher proportion of the enrollment at Title IV non-degree-granting institutions than at Title IV degree-granting institutions (table A).

A larger percentage of all students in Title IV degree-granting institutions were women (56.1 percent). Similarly, the majority of undergraduate (56.2 percent) and graduate (57.3 percent) students were women. However, women made up only 44.2 percent of first-professional students.[3] Within each of the racial/ethnic groups, women composed the majority at all student levels except first-professional, with the exception of Blacks, where women were the majority at all levels (table B).

[2]Nonresident aliens are not included as minority students, but are categorized separately.

[3]First-professional students are those students enrolled in programs leading toward a first-professional degree in the fields of chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

Table A.—Total enrollment in Title IV postsecondary institutions, by degree-granting status, control and level of institution, and race/ethnicity of student: 50 states and District of Columbia, fall 1998

Control and level of institution, and race/ethnicity of student	All institutions		Degree-granting		Non-degree-granting	
	Number	Percent	Number	Percent	Number	Percent
All institutions	14,946,908	100.0	14,530,036	100.0	416,872	100.0
Public	11,353,880	76.0	11,160,838	76.8	193,042	46.3
Private not-for-profit	3,040,251	20.3	3,004,925	20.7	35,326	8.5
Private for-profit	552,777	3.7	364,273	2.5	188,504	45.2
4-year	9,018,970	60.3	9,017,653	62.1	1,317	0.3
2-year	5,683,681	38.0	5,512,383	37.9	171,298	41.1
Less-than-2-year	244,257	1.6	(†)	(†)	244,257	58.6
All students	14,946,908	100.0	14,530,036	100.0	416,872	100.0
White, non-Hispanic	10,436,520	69.8	10,195,494	70.2	241,026	57.8
Total minority	4,063,388	27.2	3,890,938	26.8	172,450	41.4
Black, non-Hispanic	1,666,516	11.1	1,584,902	10.9	81,614	19.6
Hispanic	1,323,990	8.9	1,259,586	8.7	64,404	15.4
Asian/Pacific Islander	921,183	6.2	901,896	6.2	19,287	4.6
American Indian/Alaska Native	151,699	1.0	144,554	1.0	7,145	1.7
Nonresident alien	447,000	3.0	443,604	3.1	3,396	0.8

†Not applicable. All less-than-2-year institutions are non-degree-granting.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:98) and "Consolidated Survey" (IPEDS-CN:98).

Overall, the majority of students (59.0 percent) were enrolled on a full-time basis. Compared to other racial/ethnic groups, Hispanics were generally more likely to be enrolled on a part-time basis, with nearly half (49.4 percent) of all Hispanic students attending school part time. However, there were some differences from this pattern at the graduate and first-professional levels. For example, at the graduate and first-professional levels, Hispanic students were more likely to enroll on a full-time basis than were Black or White students. Asian/Pacific Islanders were more likely to attend full time than any other racial/ethnic group at all student levels (table C).

Residence and Migration of First-Time, First-Year Undergraduate Students

The 1998 IPEDS "Fall Enrollment Survey" also collected enrollment data by state of residence[4] for all first-time, first-year undergraduate students in Title IV degree-granting institutions, including those students who had graduated from high school in the 12 months preceding the fall of 1998.

The percentage of first-time, first-year undergraduates who left their state of residence to attend a postsecondary institution varied considerably by state, ranging from a low of 6.3 percent for Mississippi to a high of 62.7 percent for the District of Columbia. Other states with 10 percent or less of their first-time, first-year students leaving the state were Alabama (9.4 percent), Arizona (7.8 percent), California (8.0 percent), Louisiana (9.2 percent), Michigan (9.7 percent), North Carolina (7.9 percent), Oklahoma (9.7 percent), Texas (8.3 percent), and Utah (7.9 percent). In addition to the District of Columbia, states that had 30 percent or more of their first-time, first-year undergraduates leaving the state were Alaska (50.8 percent), Connecticut (44.6 percent), Maine (37.7 percent), New Hampshire (44.8 percent), New Jersey (36.7 percent), and Vermont (46.1 percent) (table D).

In addition to having the highest rate of out-migration, the District of Columbia also had the highest rate of in-migration, with 86.8 percent of all first-time, first-year undergraduates coming from other states. Two states reported that over half of their first-time, first-year students came from out of state: Rhode Island (55.4 percent) and Vermont (60.5 percent). Texas had the lowest percentage of first-time, first-year students from other states (9.2 percent), and two other states reported less than 10 percent from out of state: Illinois (9.5 percent) and Michigan (9.5 percent) (table D).

[4]A student's state of residence is the state identified by the student as his/her permanent address at the time of application to the institution. This may be the legal residence of a parent or guardian, or the state in which the student has a driver's license or is registered to vote. It is not necessarily the state in which the student's high school is located.

Table B.—Percentage distribution of enrollment in Title IV degree-granting institutions, by race/ethnicity, student level, and gender: 50 states and District of Columbia, fall 1998

Student level	Gender	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/Pacific Islander	American Indian/ Alaska Native	Nonresident alien
Total enrollment	Men	43.9	44.2	36.9	42.9	48.2	41.0	57.4
	Women	56.1	55.8	63.1	57.1	51.8	59.0	42.6
Undergraduate	Men	43.8	44.4	37.3	43.0	47.9	41.0	53.4
	Women	56.2	55.6	62.7	57.0	52.1	59.0	46.6
First-time, first-year	Men	46.2	46.9	41.3	45.1	48.7	44.3	54.6
	Women	53.8	53.1	58.7	54.9	51.3	55.7	45.4
Other undergraduates	Men	43.3	43.8	36.3	42.5	47.8	40.2	53.2
	Women	56.7	56.2	63.7	57.5	52.2	59.8	46.8
First-professional*	Men	55.8	57.6	42.5	54.5	52.3	52.5	64.5
	Women	44.2	42.4	57.5	45.5	47.7	47.5	35.5
Graduate	Men	42.7	40.7	31.9	39.3	48.6	38.3	62.1
	Women	57.3	59.3	68.1	60.7	51.4	61.7	37.9

*First-professional students are those students enrolled in programs leading toward a first-professional degree in the fields of chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:98).

Table C.—Percentage distribution of enrollment in Title IV degree-granting institutions, by race/ethnicity, student level, and attendance status: 50 states and District of Columbia, fall 1998

Student level	Attendance status	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/Pacific Islander	American Indian/ Alaska Native	Nonresident alien
Total enrollment	Full-time	59.0	59.1	57.9	50.6	61.8	57.4	78.2
	Part-time	41.0	40.9	42.1	49.4	38.2	42.6	21.8
Undergraduate	Full-time	60.6	61.4	59.5	50.8	61.6	57.8	80.8
	Part-time	39.4	38.6	40.5	49.2	38.4	42.2	19.2
First-time, first-year	Full-time	80.2	81.6	77.4	71.2	81.0	75.2	89.5
	Part-time	19.8	18.4	22.6	28.8	19.0	24.8	10.5
Other undergraduates	Full-time	56.3	57.0	55.2	46.7	57.9	54.0	79.3
	Part-time	43.7	43.0	44.8	53.3	42.1	46.0	20.7
First-professional*	Full-time	89.6	89.3	84.1	89.4	94.8	90.1	92.4
	Part-time	10.4	10.7	15.9	10.6	5.2	9.9	7.6
Graduate	Full-time	42.6	37.7	38.2	40.3	50.8	44.6	74.6
	Part-time	57.4	62.3	61.8	59.7	49.2	55.4	25.4

*First-professional students are those students enrolled in programs leading toward a first-professional degree in the fields of chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:98).

Changes in Enrollment Between 1997 and 1998

Between 1997 and 1998, enrollment in Title IV degree-granting institutions increased by 0.2 percent. While enrollment at public institutions decreased slightly (down 0.3 percent), enrollment at private for-profit institutions increased by nearly 11 percent. The number of women enrolled in Title IV degree-granting institutions increased at all student levels, while the number of men decreased somewhat at all levels. When examined by race/ethnicity, the overall increase in enrollment can be traced to a rise in minority enrollment, especially among Asian/Pacific Islanders and Hispanics, whose enrollment increased by 5.0 and 3.4 percent, respectively. During the same period, the number of nonresident aliens decreased by 4.6 percent and the enrollment of Whites dropped 0.7 percent, almost offsetting the rise in minority enrollment (table E).

There was a slight increase in enrollment at all student levels, with the biggest growth in numbers at the graduate level and the greatest percentage increase at the first-professional level. Undergraduate enrollment increased by only 0.1 percent, while first-professional enrollment rose 1.4 percent and graduate enrollment increased 0.8 percent. At the undergraduate level, the change patterns were similar to those at the total level for each group of students except nonresident aliens, whose undergraduate enrollment decreased by 10.0 percent. Although the overall enrollment percentage increase at the first-professional level was greater than at any other student level, first-professional enrollment in private for-profit schools declined by almost 12 percent. At the graduate level, enrollment in private for-profit schools increased by 21.2 percent, a much higher increase than at the undergraduate and total levels (10.2 and 10.9 percent, respectively) (table E).

Data sources: The NCES 1997 and 1998 Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF:97 and IPEDS-EF:98) and 1998 IPEDS "Consolidated Survey" (IPEDS-CN:98).

For technical information, see the complete report:

Morgan, F.B. (2001). *Fall Enrollment in Title IV Degree-Granting Postsecondary Institutions: 1998* (NCES 2002-162).

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To obtain the complete report (NCES 2002-162), visit the NCES Web Site (http://nces.ed.gov).

Table D.—In- and out-migration of all first-time, first-year degree-seeking undergraduates enrolled in Title IV degree-granting institutions, by state: 50 states and District of Columbia, fall 1998

State	Percent of enrollment due to in-migration	Percent of enrolled residents leaving state
Alabama	18.3	9.4
Alaska	23.3	50.8
Arizona	20.5	7.8
Arkansas	14.0	12.0
California	10.7	8.0
Colorado	27.1	16.7
Connecticut	34.0	44.6
Delaware	43.4	25.9
District of Columbia	86.8	62.7
Florida	26.0	13.1
Georgia	18.7	15.0
Hawaii	15.2	23.5
Idaho	28.3	22.4
Illinois	9.5	16.7
Indiana	22.9	12.0
Iowa	21.4	11.0
Kansas	17.4	11.6
Kentucky	16.4	13.5
Louisiana	12.2	9.2
Maine	27.5	37.7
Maryland	22.7	29.9
Massachusetts	38.9	27.0
Michigan	9.5	9.7
Minnesota	40.2	26.5
Mississippi	14.8	6.3
Missouri	21.1	15.4
Montana	20.5	24.1
Nebraska	17.0	15.8
Nevada	14.4	17.4
New Hampshire	48.4	44.8
New Jersey	10.5	36.7
New Mexico	18.2	20.3
New York	18.5	17.3
North Carolina	20.0	7.9
North Dakota	31.8	17.8
Ohio	16.5	13.0
Oklahoma	14.3	9.7
Oregon	23.6	20.0
Pennsylvania	22.3	16.4
Rhode Island	55.4	29.1
South Carolina	19.0	11.4
South Dakota	22.0	21.9
Tennessee	22.8	15.6
Texas	9.2	8.3
Utah	30.3	7.9
Vermont	60.5	46.1
Virginia	27.1	20.2
Washington	13.1	17.9
West Virginia	25.5	16.6
Wisconsin	20.2	14.8
Wyoming	30.5	29.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:98).

Table E.—Enrollment in Title IV degree-granting institutions, by student level, control of institution, gender, and race/ethnicity of student: 50 states and District of Columbia, fall 1997 and fall 1998

	Total enrollment					Undergraduate				
	Fall 1997		Fall 1998		Percent change	Fall 1997		Fall 1998		Percent change
	Number	Percent	Number	Percent		Number	Percent	Number	Percent	
All institutions	14,502,334	100.0	14,530,036	100.0	0.2	12,450,587	100.0	12,460,006	100.0	0.1
Control of institution										
Public	11,196,119	77.2	11,160,838	76.8	-0.3	10,007,479	80.4	9,973,281	80.0	-0.3
Private not-for-profit	2,977,614	20.5	3,004,925	20.7	0.9	2,139,824	17.2	2,152,655	17.3	0.6
Private for-profit	328,601	2.3	364,273	2.5	10.9	303,284	2.4	334,070	2.7	10.2
Gender of student										
Men	6,396,028	44.1	6,379,054	43.9	-0.3	5,468,532	43.9	5,455,922	43.8	-0.2
Women	8,106,306	55.9	8,150,982	56.1	0.6	6,982,055	56.1	7,004,084	56.2	0.3
Race/ethnicity of student										
White, non-Hispanic	10,266,122	70.8	10,195,494	70.2	-0.7	8,783,903	70.6	8,720,288	70.0	-0.7
Minority	3,771,210	26.0	3,890,938	26.8	3.2	3,398,505	27.3	3,498,350	28.1	2.9
Black, non-Hispanic	1,551,044	10.7	1,584,902	10.9	2.2	1,398,058	11.2	1,423,706	11.4	1.8
Hispanic	1,218,493	8.4	1,259,586	8.7	3.4	1,125,924	9.0	1,162,303	9.3	3.2
Asian/Pacific Islander	859,206	5.9	901,896	6.2	5.0	743,706	6.0	779,730	6.3	4.8
American Indian/ Alaska Native	142,467	1.0	144,554	1.0	1.5	130,817	1.1	132,611	1.1	1.4
Nonresident alien	465,002	3.2	443,604	3.1	-4.6	268,179	2.2	241,368	1.9	-10.0

	First-professional*					Graduate				
	Fall 1997		Fall 1998		Percent change	Fall 1997		Fall 1998		Percent change
	Number	Percent	Number	Percent		Number	Percent	Number	Percent	
All institutions	298,258	100.0	302,473	100.0	1.4	1,753,489	100.0	1,767,557	100.0	0.8
Control of institution										
Public	118,249	39.6	120,698	39.9	2.1	1,070,391	61.0	1,066,859	60.4	-0.3
Private not-for-profit	178,544	59.9	180,482	59.7	1.1	659,246	37.6	671,788	38.0	1.9
Private for-profit	1,465	0.5	1,293	0.4	-11.7	23,852	1.4	28,910	1.6	21.2
Gender of student										
Men	169,627	56.9	168,846	55.8	-0.5	757,869	43.2	754,286	42.7	-0.5
Women	128,631	43.1	133,627	44.2	3.9	995,620	56.8	1,013,271	57.3	1.8
Race/ethnicity of student										
White, non-Hispanic	220,386	73.9	220,943	73.0	0.3	1,261,833	72.0	1,254,263	71.0	-0.6
Minority	70,414	23.6	74,122	24.5	5.3	302,291	17.2	318,466	18.0	5.4
Black, non-Hispanic	21,364	7.2	22,460	7.4	5.1	131,622	7.5	138,736	7.8	5.4
Hispanic	13,865	4.6	14,362	4.7	3.6	78,704	4.5	82,921	4.7	5.4
Asian/Pacific Islander	32,903	11.0	35,119	11.6	6.7	82,597	4.7	87,047	4.9	5.4
American Indian/ Alaska Native	2,282	0.8	2,181	0.7	-4.4	9,368	0.5	9,762	0.6	4.2
Nonresident alien	7,458	2.5	7,408	2.4	-0.7	189,365	10.8	194,828	11.0	2.9

*First-professional students are those students enrolled in programs leading toward a first-professional degree in the fields of chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 and 1998 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:97 and IPEDS-EF:98).

The Persistence of Employees Who Pursue Postsecondary Study

Lisa Hudson and David Hurst

This article was originally published as a Stats in Brief. The sample survey data are from the NCES Beginning Postsecondary Students Longitudinal Study (BPS).

Among the roughly 3 million students who began their postsecondary education in academic year 1995–96, about 70 percent worked while enrolled. Many of these working students (29 percent) defined themselves primarily as an employee who decided to enroll in school, indicating that there are a substantial number of postsecondary students whose primary focus is work. Who are these "employees who study," in what postsecondary institutions did they enroll, what were their educational expectations, and how likely were they to meet their expectations? This Stats in Brief uses data from the base year and first follow-up to the 1996 Beginning Postsecondary Students Longitudinal Study (BPS:96/98) to answer these questions.

Student/Employee Role and Level of First Institution

Among all 1995–96 beginning postsecondary students, 32 percent did not work while enrolled (referred to in this Stats in Brief as "nonworking students"), 48 percent worked while enrolled and considered themselves a student working to meet expenses (referred to as "students who work"), and 20 percent worked while enrolled and defined themselves as an employee who decided to enroll in school (referred to as "employees who study") (table 1). Employees who study were more likely than other students to have first enrolled in a 2-year institution and less likely than other students to have first enrolled in a 4-year institution. For example, about three-quarters (73 percent) of employees who study first enrolled in a 2-year institution, compared to 50 percent of students who work and 35 percent of nonworking students (table 1). While employees who study were more likely to have first enrolled in a less-than-2-year institution than were students who work, they were less likely to do so than were nonworking students.

Students may enroll in different institutions in part because they have different degree expectations.[1] Generally speaking, employees who study were more likely to expect to earn either no postsecondary credential (i.e., no degree or certificate) or a credential below the bachelor's degree level, while students who work and nonworking students were more likely to expect to earn a bachelor's degree or higher (table 1). The only exception to this pattern was that employees who study were about as likely as nonworking students to expect to earn a certificate.

Student Completion and Persistence

The BPS:96/98 data allow for an examination of student completion and persistence as of spring 1998, about 3 years after most students had first enrolled. Because students pursuing a postsecondary credential often take more than 3 years to complete their programs, it is important to consider both completion (i.e., whether a student had earned a postsecondary credential by 1998) as well as persistence (i.e., whether a student was enrolled in a postsecondary institution in 1998). Table 2 indicates the percentage of beginning 1995–96 students who had earned a degree or certificate by spring 1998, the percentage who had not earned a degree or certificate but were enrolled in spring 1998, and the percentage who were not enrolled in spring 1998 and had not earned a degree or certificate.

Twenty percent of employees who study had earned a degree or certificate by spring 1998, a completion rate higher than the rate for students who work (14 percent) and about the same as the rate for nonworking students (19 percent). However, employees who study were less likely to be persisting in school; that is, they were less likely to be enrolled in spring 1998 without having earned a degree or certificate, and they were about twice as likely as other students to have left postsecondary education without a degree or certificate by 1998 (54 percent compared to 27 percent).

Students' completion and persistence, however, may be related to their degree expectations. Students not expecting to earn a degree or certificate, for example, may be less likely to be enrolled or to have earned a credential by 1998 than those expecting to earn a postsecondary credential. Because the degree expectations of employees who study were found to be somewhat different from those of other students, it is more informative to compare postsecondary

[1] The expectations data reported here refer to expectations at the institution in which students were first enrolled. However, students expecting to transfer to a 4-year institution were classified as expecting to earn a bachelor's degree, and students expecting to transfer to a 2-year institution were classified as expecting to earn an associate's degree. These reclassifications were made based on the assumption that students who transferred did so with the intent of obtaining a degree at the transfer institution. The term "degree" is used in this brief as a generic term (including any type of credential that indicates the completion of a postsecondary program) when referring to "degree expectations" and "highest degree expected."

Table 1.—Percentage distribution of beginning postsecondary students overall and according to level of first institution and highest degree expected at first institution, by student/employee role: 1995–96

Student/ employee role	Total	Institution level			Highest degree expected at first institution			
		4-year	2-year	Less-than-2-year	No degree	Certificate	Associate's degree[1]	Bachelor's degree or higher[2]
Total	100.0	41.1	49.7	9.2	8.8	13.9	28.7	48.7
Employees who study	20.1	15.7	73.4	10.9	17.4	22.9	37.2	22.4
Students who work	48.3	44.8	49.9	5.2	5.6	8.1	29.9	56.5
Nonworking students	31.7	50.3	34.9	14.7	8.3	17.4	20.5	53.8

[1]Includes students expecting to transfer to a 2-year school.

[2]Includes students expecting to transfer to a 4-year school.

NOTE: Percentages may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

Table 2.—Percentage distribution of 1995–96 beginning postsecondary students according to spring 1998 completion and persistence, by student/employee role and highest degree expected at first institution

Student/employee role and highest degree expected	Completed by spring 1998	No degree, enrolled spring 1998	No degree, left without returning
Total	15.9	51.9	32.3
Student/employee role			
Employees who study	19.8	26.4	53.8
Students who work	13.7	58.9	27.4
Nonworking students	18.6	54.7	26.7
Highest degree expected at first institution			
No degree	11.9	28.5	59.6
Employees who study	7.4	21.3	71.3
Students who work	7.9	38.1	54.1
Nonworking students	21.1	28.4	50.5
Certificate	54.3	9.7	36.0
Employees who study	50.9	9.6	39.5
Students who work	51.4	15.7	32.8
Nonworking students	59.7	5.0	35.2
Associate's degree[1]	20.5	36.5	43.0
Employees who study	14.7	27.1	58.2
Students who work	23.6	40.9	35.5
Nonworking students	22.0	33.6	44.4
Bachelor's degree or higher[2]	5.0	76.5	18.5
Employees who study	8.0	48.3	43.8
Students who work	4.2	77.4	18.4
Nonworking students	4.4	83.8	11.9

[1]Includes students expecting to transfer to a 2-year school.

[2]Includes students expecting to transfer to a 4-year school.

NOTE: Percentages may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

outcomes among students who held similar degree expectations.

Completion and persistence among students with similar degree expectations

Table 2 indicates that among students who did not expect to earn a postsecondary credential and among students seeking a certificate, employees who study were generally as likely as other students to have earned a credential, to be persisting in school, or to have dropped out as of spring 1998.[2] The one exception was that among those who did not expect to earn a credential, employees who study were less likely to have earned a degree or certificate than were nonworking students.

Among students seeking an associate's degree, employees who study were about as likely as their peers to have earned a degree or certificate by spring 1998. Employees who study were, however, less likely than students who work to be persisting in school and were more likely than students who work to have dropped out as of spring 1998.

Among students expecting to earn at least a bachelor's degree, employees who study were about as likely as other students to have earned a degree or certificate. Employees who study, however, were less likely than all other students to be persisting in school and were more likely than all other students to have dropped out as of spring 1998.

Background characteristics and student completion and persistence

These results suggest that among students who expected to earn an associate's degree or higher, employees who study generally were less likely than their peers to persist in postsecondary education. Employees who study, however, differ from their peers on other characteristics that might account for the differences observed in table 2. Previous research has identified a number of student background characteristics that are related to lower levels of completion and persistence among those expecting to earn a degree. These characteristics include full-time employment while enrolled, being a single parent, and not having a standard high school diploma (e.g., Horn 1996). In addition, among students who expect to earn a bachelor's degree or higher, having parents with lower educational attainment is also related to lower levels of postsecondary persistence and completion (National Center for Education Statistics 2001). Employees who study generally were more likely than students who work to have these characteristics. Employees who study were more likely than students who work to be single parents and to have completed high school through a GED. Employees who study were also less likely than their peers to have a parent with a bachelor's degree or higher; 20 percent of employees who study had a parent with at least a bachelor's degree, compared to 39 percent of students who work and 37 percent of nonworking students. Finally, about 63 percent of employees who study worked full time, compared to 22 percent of students who work. However, even among degree-seeking students who worked full time, employees who study were more likely to have left school without returning and less likely to be enrolled in spring 1998 than were students who work.

Conclusions

Among those who expect to earn a certificate from their first postsecondary institution, students who define themselves as employees who study seem to do as well as their peers at persisting in and completing their postsecondary programs. But employees who study seem to have a more difficult time than other working students in persisting when their expectations are to earn an associate's degree, and a more difficult time than all other students in persisting when their expectations are to earn a bachelor's or higher level degree. This persistence problem has many potential causes. Since employees who study are more likely than other students to be full-time workers, they face greater time constraints that may make it more difficult for them to continue their studies. In addition, because their primary role is as an employee rather than as a student, they may be more likely than other students to forgo schooling for work when time (or other factors) becomes an issue. Finally, employees who study are more likely than their peers to have personal backgrounds that are related to lower postsecondary completion and persistence; these background characteristics may also contribute to

[2]Because the number of students who did not expect to earn a postsecondary credential is relatively small, these estimates have large standard errors, and therefore some of the apparent differences are not statistically significant.

persistence problems. In short, for a variety of reasons, employees who enroll in college to pursue a degree appear to be a group of postsecondary students who are particularly at risk for not persisting.

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Data source: The NCES 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS: 96/98).

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Distance Education Instruction by Postsecondary Faculty and Staff: Fall 1998

Ellen M. Bradburn

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Study of Postsecondary Faculty (NSOPF).

Distance education availability, course offerings, and enrollments increased rapidly during the 1990s (Lewis et al. 1999). The proliferation of distance education offerings at the nation's degree-granting institutions has sparked considerable public debate, with vocal proponents (Turoff 1999) and detractors (Young 2000). However, the extent to which instructional faculty and staff are involved in distance education has not been extensively explored (Phipps and Merisotis 1999).

This report begins to address some of the questions about the role of faculty in distance education in fall 1998 using the 1999 National Study of Postsecondary Faculty (NSOPF:99). In NSOPF:99, instructional faculty and staff at 2- and 4-year degree-granting institutions were asked questions about a wide range of issues.

The analysis in this report focuses on whether instructional faculty and staff—that is, respondents who reported teaching one or more classes for credit whether or not they were considered by the institution to have faculty status[1]—indicated teaching at least one distance class. This report uses two items from the NSOPF:99 faculty questionnaire to determine whether respondents taught any distance classes. First, for each of up to five for-credit classes, respondents were asked to indicate whether the class was taught "through a distance education program."[2] In this report, respondents answering "yes" for any of their classes are described as having taught at least one "distance education class." Second, for each of the same for-credit classes, respondents were asked to indicate the primary medium used to teach the class: face-to-face, computer, TV-based, or other. Respondents indicating that any of their classes were taught using any primary medium other than face-to-face communication are described as having taught at least one "non–face-to-face class." Each of these two variables provides a measure of participation in distance education. When results apply to both measures, the term "distance class" is used.

[1] For brevity, the term "faculty" is often used in this report, although it includes staff teaching for-credit classes who do not have faculty status.

[2] The term "distance education program" was not defined for respondents.

Although the NSOPF:99 faculty questionnaire lacked detailed questions about modes of technology, training, and instructional practices in individual distance education courses, the data permit description of national patterns of faculty involvement in distance education. The findings also describe the relationship of participation in distance education to other aspects of faculty work, such as workload and student interaction. The results presented here also serve as a baseline for studies of trends in faculty participation in distance education using future data collections. The report first presents the proportion of faculty who taught distance classes and the relationship of faculty and institutional characteristics to teaching distance classes. Then, instructional faculty and staff who taught distance classes are compared with those who did not in terms of workload and compensation, interactions with students, classroom and student practices, and job satisfaction. Most of the analyses for this report were conducted separately for full- and part-time respondents.

Instructional Faculty and Staff Teaching For-Credit Distance Classes

Across the nation, about 6 percent of instructional faculty and staff who reported teaching one or more for-credit classes indicated that they taught at least one distance education class in fall 1998. Nine percent reported teaching at least one class primarily in a non–face-to-face mode—using a computer, TV-based, or other non–face-to-face medium. Those who taught distance education classes were considerably more likely than those who did not teach distance education classes to have also indicated that they taught non–face-to-face classes. Nevertheless, among those who did not teach distance education classes, about 6 percent indicated that they taught at least one class using a primarily non–face-to-face medium. Of those who did teach distance education classes, about one-third (36 percent) indicated that they taught only classes that used primarily face-to-face instruction (i.e., identified their distance education classes as using primarily face-to-face instruction). This could occur when most of the students in a given class meet in a traditional classroom, but some students elect to take the same class via distance education.

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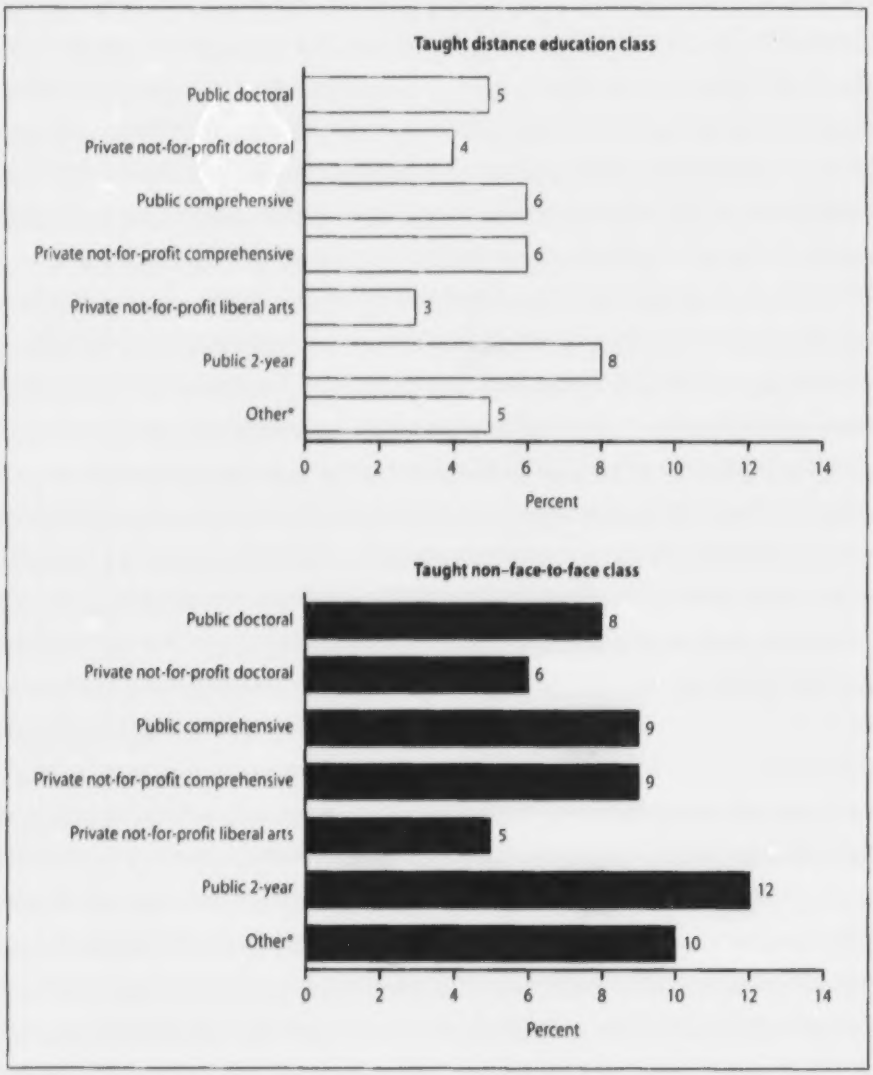
Few demographic characteristics (e.g., gender, race/ethnicity), conditions of employment (e.g., full- or part-time status, academic rank, tenure status), or aspects of education and experience (e.g., highest degree attained, years in current job) were associated with either dimension of participation in distance education. Only institution type was associated both with teaching distance education classes and with teaching non–face-to-face classes: faculty at public 2-year institutions were more likely than those at private doctoral or liberal arts institutions to teach either type of distance class (figure A). For example, faculty at public 2-year institutions were more likely than their counterparts at private doctoral institutions to teach at least one non–face-to-face class (12 vs. 6 percent).

Figure A.—Percentage of instructional faculty and staff at degree-granting institutions who taught distance classes, by institutional type: Fall 1998



*Includes public liberal arts, private not-for-profit 2-year, and other specialized institutions.

NOTE: Includes all instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Distance education classes refer to any identified as being taught through a distance education program. Non–face-to-face classes are those taught with a computer, TV-based, or other non–face-to-face primary medium.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), Data Analysis System.

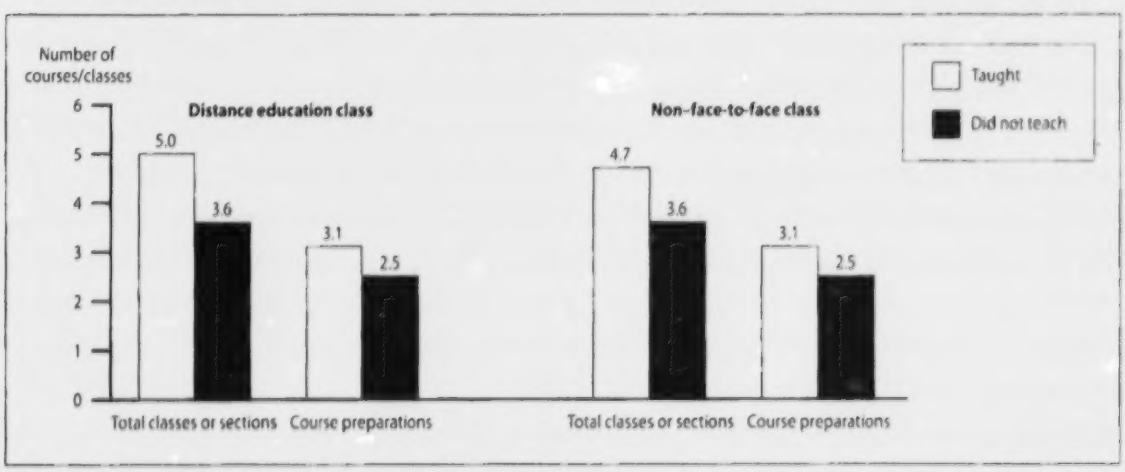
Workload and Compensation

Is distance education offered *in addition* to regular course offerings, or does it replace other classes? Faculty interest groups have suggested that faculty workload may increase as distance education proliferates. In particular, some have concluded that distance education offerings require a disproportionate investment of time and effort on the part of faculty members, even when compared with classroom courses of comparable size, content, and credit (American Association of University Professors 1999; American Council on Education 2000; University of Illinois Teaching at a Distance Seminar 1999). While these data cannot address student-faculty ratios at the departmental or institutional level, and cannot examine causal relationships, several measures of the teaching load at the faculty level are available to provide a snapshot of the activities of those faculty who do and do not teach distance classes.

Overall, the teaching load was somewhat higher for instructional faculty and staff teaching distance classes than for those not doing so. On average, full-time faculty reporting participation in distance education taught at least one class or section more in fall 1998 than those not teaching either distance education classes or non–face-to-face classes (figure B). The difference appeared to be due to their teaching more for-credit classes or sections, rather than more noncredit classes or sections. Faculty teaching distance classes also averaged about 3.1 unique course preparations, compared with about 2.5 preparations for their colleagues not teaching distance classes. These relationships were also found for part-time faculty and when controlling for other characteristics such as institution type, teaching discipline, and level of classroom instruction. However, the average class size for faculty who taught distance classes was comparable to the average class size for those faculty who did not, and the percentage of total work time spent on teaching activities was also similar for faculty who taught distance classes (62 percent) and those who did not (60 percent).

Incorporating distance education into faculty schedules as part of regular teaching loads, as overloads, or on a class-by-class basis has implications for the compensation faculty receive for their work (Lynch and Corry 1998). Despite the difference in workload, the basic salary instructional faculty and staff received from their institution for calendar year 1998 was similar regardless of participation in distance education. This analysis also looked at additional income faculty received from the institution, such as money received for summer sessions, overloads, or coaching, for that year. Full-time faculty who taught classes offered through distance education programs earned about $1,700 more in additional institutional income (beyond their basic salary) than those who did not teach such classes; however,

Figure B.—Average teaching load of full-time instructional faculty and staff at degree-granting institutions, by participation in distance classes: Fall 1998



NOTE: Includes all instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Distance education classes refer to any identified as being taught through a distance education program. Non–face-to-face classes are those taught with a computer, TV-based, or other non–face-to-face primary medium.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), Data Analysis System.

compensation for those who taught non–face-to-face classes was comparable to compensation for their colleagues who taught only face-to-face classes. Part-time faculty who taught either type of distance class were similar in the additional income they received.

Student-Faculty Interaction

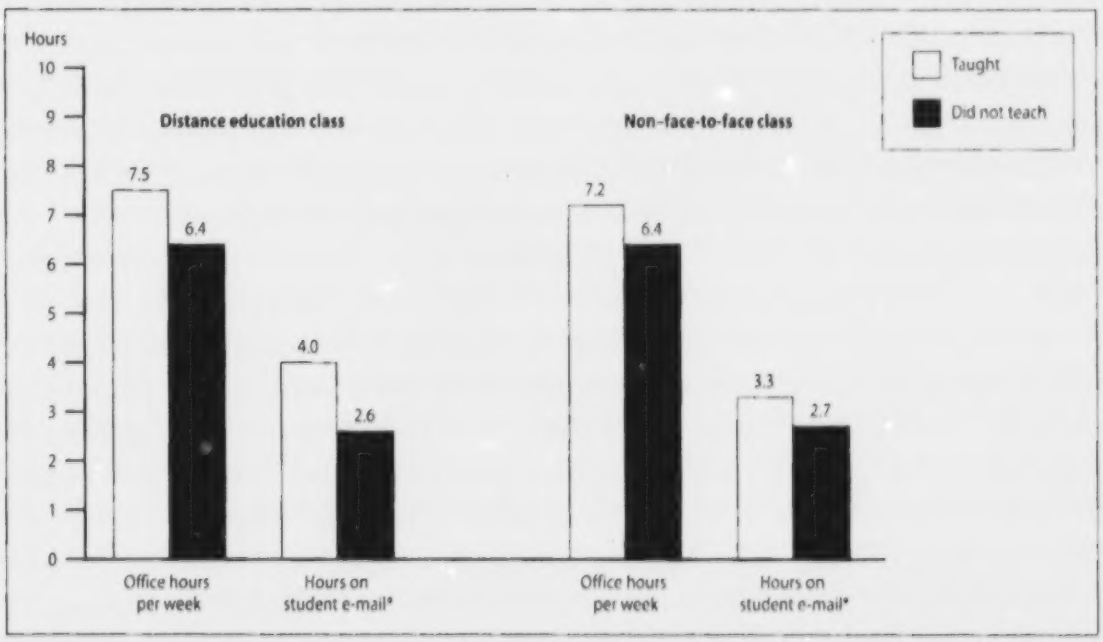
Both proponents and critics of distance education stress that personal interaction is crucial to the learning process, but disagree over whether the kind of interaction the distance education student experiences is of comparable educational value to that experienced by the on-campus student (Gladieux and Swail 1999; Sherron and Boettcher 1997). NSOPF:99 included a few indicators of faculty availability to or interaction with students, including both traditional means (office hours and student contact hours) and a more novel one (e-mail communication).

Based on the evidence available for these types of contact, those faculty who participated in distance education appeared to interact with students, or be available to them, more than their nondistance counterparts in fall 1998. Full-time faculty teaching distance classes held slightly more office hours per week than their peers who did not teach distance education classes or non–face-to-face classes (figure C).

And because they taught more for-credit classes, while average class size was comparable, faculty teaching distance classes had more student contact hours per week than those not teaching such classes. Furthermore, full-time faculty who taught distance classes were more likely than other faculty to communicate with their students via e-mail.

Among those exchanging e-mail with students, distance education faculty reported exchanging e-mail with a higher percentage of their students, and spending more time each week in this activity, than their nondistance colleagues. For example, full-time instructional faculty and staff who taught any distance education classes spent about an hour and a

Figure C.—Average office hours and hours spent on student e-mail per week for full-time instructional faculty and staff at degree-granting institutions, by participation in distance classes: Fall 1998



*For those who said they communicated with students via e-mail.

NOTE: Includes all instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Distance education classes refer to any identified as being taught through a distance education program. Non–face-to-face classes are those taught with a computer, TV based, or other non–face-to-face primary medium.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), Data Analysis System.

half more each week responding to student e-mail than their counterparts teaching only traditional classes. Many of these differences were found for part-time faculty as well.

Other Findings

There is some evidence that faculty teaching distance classes are more "wired" than their counterparts not teaching such classes. Internet access and the quality of institutional computing resources were associated with whether faculty taught any non–face-to-face classes. As described above, those faculty who taught distance classes exchanged more e-mail with their students. They were also more likely to use class-specific Web sites. These results are consistent with the expansion of modes of distance education that take advantage of recent developments in advanced telecommunications.

Relatively few differences were found between faculty teaching distance classes and their colleagues not doing so in terms of other factors explored in this study. For example, there were few differences in the use of various assessment practices, and in job satisfaction and opinions about the institutional climate in which faculty members worked. In fact, despite carrying larger teaching loads, faculty who taught any distance classes were just as likely, and in some cases *more* likely, to indicate that they were very satisfied with their workload, compared with faculty teaching only traditional classes.

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For technical information, see the complete report:

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Table B.—Number and percent of degrees conferred by Title IV degree-granting postsecondary institutions, by control of institution and level of degree: 50 states and District of Columbia, academic year 1999–2000

Level of degree	Total	Public	Private not-for-profit	Private for-profit
Total, all degrees	2,384,163	1,563,113	719,421	101,629
Percent of total	100.0	100.0	100.0	100.0
Associate's degrees	564,933	448,446	46,337	70,150
Percent of total	23.7	28.7	6.4	69.0
Bachelor's degrees	1,237,875	810,855	406,958	20,062
Percent of total	51.9	51.9	56.6	19.7
Master's degrees	457,056	243,157	203,591	10,308
Percent of total	19.2	15.6	28.3	10.1
Doctor's degrees	44,808	28,408	15,800	600
Percent of total	1.9	1.8	2.2	0.6
First-professional degrees*	79,491	32,247	46,735	509
Percent of total	3.3	2.1	6.5	0.5

*First-professional degrees are awarded after completion of the academic requirements to begin practice in the following professions: chiropractic (D.C. or D.C.M.); dentistry (D.D.S. or D.M.D.); law (L.L.B. or J.D.); medicine (M.D.); optometry (O.D.); osteopathic medicine (D.O.); pharmacy (Pharm.D.); podiatry (D.P.M., D.P., or Pod.D.); theology (M.Div., M.H.L., B.D., or Ordination); or veterinary medicine (D.V.M.).

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2000.

Public institutions awarded the majority of degrees at all degree levels, except at the first-professional level. They awarded 79 percent of associate's degrees, 66 percent of bachelor's degrees, 53 percent of master's degrees, and 63 percent of doctor's degrees (table C). The majority of first-professional degrees (59 percent) were awarded by private not-for-profit institutions, while public institutions awarded 41 percent of the degrees at this level.

Gender and race/ethnicity of recipients

Overall, women earned more degrees than men. About 57 percent of all degrees awarded in academic year 1999–2000 went to women (table C). Considering degrees by level, women earned more associate's, bachelor's, and master's degrees than men in 1999–2000. Women earned 60 percent of the associate's degrees, 57 percent of the bachelor's degrees, and 58 percent of the master's degrees. On the other hand, men earned 56 percent of the doctor's degrees and 55 percent of the first-professional degrees.

Over two-thirds (70 percent) of all degrees conferred during the 1999–2000 academic year were awarded to White students, 21 percent were awarded to minority students, and 9 percent were awarded to nonresident aliens or individuals whose race/ethnicity was unknown. The majority of degrees at each level were awarded to White students: 70 percent of associate's degrees, 72 percent of bachelor's degrees, 66 percent of master's degrees, 59 percent of doctor's degrees, and 72 percent of first-professional degrees.

The proportion of degrees awarded to minority students was highest at the associate's level. Minorities received 25 percent of associate's degrees. They were also awarded 21 percent of bachelor's degrees, 16 percent of master's degrees, 13 percent of doctor's degrees, and 22 percent of first-professional degrees. This general decline by level was even greater when the awards to Asian/Pacific Islanders were excluded from the minority count. Blacks, Hispanics, and American Indians/Alaska Natives received 20 percent of all associate's degrees, 15 percent of all bachelor's degrees, 12 percent of all master's and all first-professional degrees, and 8 percent of all doctor's degrees.

The proportion of degrees awarded to nonresident aliens varied by level. Nonresident aliens received less than 5 percent of associate's, bachelor's, or first-professional degrees; however, they received 12 percent of all master's degrees and 24 percent of all doctor's degrees.

Table C.—Number and percent of degrees conferred by Title IV degree-granting postsecondary institutions, by level of degree, control of institution, gender, and race/ethnicity of recipient: 50 states and District of Columbia, academic year 1999–2000

	Total degrees		Associate's degrees		Bachelor's degrees	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
All institutions	2,384,163	100.0	564,933	100.0	1,237,875	100.0
Control of institution						
Public	1,563,113	65.6	448,446	79.4	810,855	65.5
Private not-for-profit	719,421	30.2	46,337	8.2	406,958	32.9
Private for-profit	101,629	4.3	70,150	12.4	20,062	1.6
Gender of recipient						
Men	1,015,853	42.6	224,721	39.8	530,367	42.8
Women	1,368,310	57.4	340,212	60.2	707,508	57.2
Race/ethnicity of recipient						
White, non-Hispanic	1,676,041	70.3	396,127	70.1	896,485	72.4
Black, non-Hispanic	203,560	8.5	58,347	10.3	104,158	8.4
Hispanic	145,114	6.1	49,945	8.8	72,290	5.8
Asian/Pacific Islander	134,085	5.6	26,890	4.8	75,050	6.1
American Indian/Alaska Native	17,497	0.7	6,282	1.1	8,413	0.7
Race/ethnicity unknown	90,047	3.8	17,254	3.1	42,413	3.4
Nonresident alien	117,819	4.9	10,088	1.8	39,066	3.2

	Master's degrees		Doctor's degrees		First-professional degrees*	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
All institutions	457,056	100.0	44,808	100.0	79,491	100.0
Control of institution						
Public	243,157	53.2	28,408	63.4	32,247	40.6
Private not-for-profit	203,591	44.5	15,800	35.3	46,735	58.8
Private for-profit	10,308	2.3	600	1.3	509	0.6
Gender of recipient						
Men	191,792	42.0	25,028	55.9	43,945	55.3
Women	265,264	58.0	19,780	44.1	35,546	44.7
Race/ethnicity of recipient						
White, non-Hispanic	299,732	65.6	26,471	59.1	57,226	72.0
Black, non-Hispanic	33,566	7.3	2,147	4.8	5,342	6.7
Hispanic	17,986	3.9	1,243	2.8	3,650	4.6
Asian/Pacific Islander	21,642	4.7	2,297	5.1	8,206	10.3
American Indian/Alaska Native	2,106	0.5	155	0.3	541	0.7
Race/ethnicity unknown	26,044	5.7	1,661	3.7	2,675	3.4
Nonresident alien	55,980	12.2	10,834	24.2	1,851	2.3

*First-professional degrees are awarded after completion of the academic requirements to begin practice in the following professions: chiropractic (D.C. or D.C.M.); dentistry (D.D.S. or D.M.D.); law (L.L.B. or J.D.); medicine (M.D.); optometry (O.D.); osteopathic medicine (D.O.); pharmacy (Pharm.D.); podiatry (D.P.M., D.P., or Pod.D.); theology (M.Div., M.H.L., B.D., or Ordination); or veterinary medicine (D.V.M.).

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2000.

Degree fields

When considering degrees awarded by field of study, 21 percent of all bachelor's degrees conferred during 1999–2000 were in the field of business management and administrative services (table D). The social sciences and history program area accounted for 10 percent of all bachelor's degrees, and education accounted for 9 percent.[4]

Business management and administrative services and education were popular fields of study at the master's level, together accounting for over half of all master's degrees conferred in 1999–2000. Twenty-four percent of master's degrees were in the field of business management and administrative services, while 27 percent of master's degrees were in the field of education. Health professions and related sciences accounted for 9 percent of awards at this level.

[4]Degrees by field of study (2-digit CIP level) are based on the 1990 version of the Classification of Instructional Programs.

Six fields of study accounted for two-thirds of all doctor's degrees awarded in 1999–2000: 15 percent of the doctor's degrees were awarded in education, 12 percent in engineering, 11 percent in biological sciences/life sciences, 10 percent in psychology, 9 percent in social sciences and history, and 9 percent in physical sciences.

Data source: The NCES Integrated Postsecondary Education Data System (IPEDS), Fall 2000.

For technical information, see the complete report:

Knapp, L.G., Kelly, J.E., Whitmore, R.W., Wu, S., Gallego, L.M., and Grau, E. (2001). *Postsecondary Institutions in the United States: Fall 2000 and Degrees and Other Awards Conferred: 1999–2000* (NCES 2002–156).

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To obtain the complete report (NCES 2002–156), visit the NCES Web Site (http://nces.ed.gov).

Table D.—Number and percent of associate's, bachelor's, master's, and doctor's degrees conferred by Title IV degree-granting postsecondary institutions, by level of degree for selected fields: 50 states and District of Columbia, academic year 1999–2000

	Associate's degrees		Bachelor's degrees		Master's degrees		Doctor's degrees	
Field of study*	Number	Percent of total	Number	Percent of total	Number	Percent of total	Number	Percent of total
Total, all fields	564,933	100.0	1,237,875	100.0	457,056	100.0	44,808	100.0
Biological sciences/life sciences	1,434	0.3	63,532	5.1	6,198	1.4	4,867	10.9
Business management and administrative services	92,274	16.3	253,162	20.5	111,664	24.4	1,193	2.7
Education	8,226	1.5	108,168	8.7	124,240	27.2	6,830	15.2
Engineering	1,752	0.3	58,427	4.7	25,596	5.6	5,384	12.0
Health professions and related sciences	84,081	14.9	78,458	6.3	42,456	9.3	2,676	6.0
Physical sciences	1,350	0.2	18,213	1.5	4,823	1.1	4,016	9.0
Psychology	1,455	0.3	74,060	6.0	14,465	3.2	4,310	9.6
Social sciences and history	5,136	0.9	127,101	10.3	14,066	3.1	4,095	9.1
All other fields	369,225	65.4	456,754	36.9	113,548	24.8	11,437	25.5

*Degrees by field of study (2-digit CIP level) are based on the 1990 version of the Classification of Instructional Programs.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2000.

Study of College Costs and Prices: 1988–89 to 1997–98

Alisa F. Cunningham, Jane V. Wellman, Melissa E. Clinedinst, and Jamie P. Merisotis

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The universe data come primarily from the NCES Integrated Postsecondary Education Data System (IPEDS). Other data sources are listed at the end of this article.

In the 1998 Amendments to the Higher Education Act (HEA), Congress directed the National Center for Education Statistics (NCES) to conduct a new study of higher education costs (expenditures)[1] paid by institutions and prices paid by students and their families. This report is the final product of Phase I of the study, which relied primarily on existing national data and statistical models.

The framework for the study was influenced by the findings of the National Commission on the Cost of Higher Education, published in *Straight Talk About College Costs and Prices* (1998). This study is one follow-up to the Commission's recommendations.

Congress directed that the study address a number of specific questions:

- How have tuition and fees changed over time compared with inflation?
- How have the major expenditure categories (including capital and technology costs) changed over time?
- How are expenditures related to prices?
- To what extent does institutional aid (i.e., financial aid provided by institutions) affect tuition increases?
- To what extent has federal financial aid been used to offset increases in institutional aid?

Goals and Limitations of the Study

Phase I had two major goals: (1) to address the questions raised by Congress (listed above) insofar as possible given currently available information; and (2) to examine the usefulness of existing statistical models for testing the relationships among revenues, costs, and prices in higher education.

The study is limited in its ability to provide specific answers to many of Congress's questions for several different reasons, not all of which could be changed in future research. The use of existing data, models, and institutional classification schemes restricted the ability to focus on certain aspects of costs and prices. For instance, institutional differences in types of students served and in program and discipline mix make it difficult for classification schemes to allow generalization across institutions. As a result, the comparison groups are formed of institutions that may not be truly comparable.

In addition, currently available national data are not sufficient to address many questions, reflecting the fact that institutions often do not collect the data required to answer questions about the relationships among prices, revenues, and expenditures. These data concerns are further complicated by several factors, including the absence of consistent definitions for terms such as technology, tuition discounting, and merit aid; the lack of uniformity in defining capital costs; and the lack of consistent institutional accounting conventions. There are differences between the accounting standards used for public and private not-for-profit institutions, which are particularly relevant to the measurement of capital costs. Public and private not-for-profit institutions are subject, respectively, to standards from the Government Accounting Standards Board (GASB) and the Financial Accounting Standards Board (FASB). Recent changes to both sets of standards may improve the data collected by NCES, but it will take several years until all changes are implemented at the institutional level.

Despite these limitations, currently available national data can be used to describe and analyze aggregate trends in costs, prices, and revenues for groups of institutions, as well as to examine the strength of various relationships among these factors. Such analyses can improve and expand upon previous national studies and address some of the issues raised by Congress in the 1998 HEA Amendments.

Study Design and Methodology

Using primarily data from the Integrated Postsecondary Education Data System (IPEDS), this study analyzes trends in costs, prices, and revenues at postsecondary institutions from 1988–89 to 1995–96 (to 1997–98 for public institutions) and explores relationships among the variables. The analyses of relationships use existing statistical models, updated and extended over a longer period of time than in previous studies. All financial data were adjusted for inflation to constant 1999 dollars using

[1] In this report, the terms "costs" and "expenditures" are used interchangeably to mean the amount institutions spend to provide education and related educational services to students.

the Consumer Price Index.[2] A different model was used for the public sector than for the private not-for-profit sector because research has consistently documented that there are fundamental differences in the financing structures, enrollment markets, and tuition decisionmaking processes between the sectors.

The study also examines relationships between tuition and financial aid variables. Because neither of the two existing models includes financial aid (except institutional aid) among the independent variables, new models were developed to analyze these relationships. In addition to using data from IPEDS, the analyses use data from the Institutional Prices and Student Financial Aid Survey (IPSFA), a new survey that captures information on both tuition and financial aid. At the time of this report, financial aid data from this survey were only available for 1 year, so an examination of changes over time to allow trends to be identified was not possible.

The universe of institutions examined in this study was drawn from the IPEDS universe, although some IPEDS institutions were excluded to increase comparability and to deal with missing data. For example, an attempt was made to include only institutions with primarily undergraduate enrollment, as undergraduate tuition charges were the focus of the study. The institutions in the final universe were grouped by sector; 4-year institutions were then divided into research/doctoral, comprehensive, and bachelor's institutions. All analyses were performed separately on each group of institutions because the groups face different financial pressures and constraints.

The number of institutions and proportions of undergraduate enrollment included in the final groups of institutions are provided in figures A and B. Although the groups of institutions comprise less than half of all public and private not-for-profit institutions in the IPEDS universe, they enroll more than three-quarters of undergraduates attending IPEDS institutions in the public and private not-for-profit sectors.

To provide a framework for this study's analyses, NCES commissioned papers from seven national experts in higher education finance and student aid. Along with findings from the study's analyses, a summary of an invitational meeting convened by NCES to discuss the commissioned papers is included in volume 1 of the report. Volume 2 of the report presents the papers themselves.

Findings and Conclusions

The conclusions reached from the trend analyses and models in this report are consistent with earlier research and the views of the expert authors who contributed commissioned papers for this report. The detailed analyses found variations in the nature and the strength of relationships between costs and prices across types of institutions, and within types of institutions over time.

Changes in tuition and other revenue sources over time

In both the public and private not-for-profit sectors, average tuition charges increased at a faster rate than inflation over the period of the analyses, and tuition charges also increased faster than most expenditure categories within the institutions. The share of overall revenue coming from tuition has increased on average for all institutional types in both sectors, compared with relative decreases in other revenue sources.

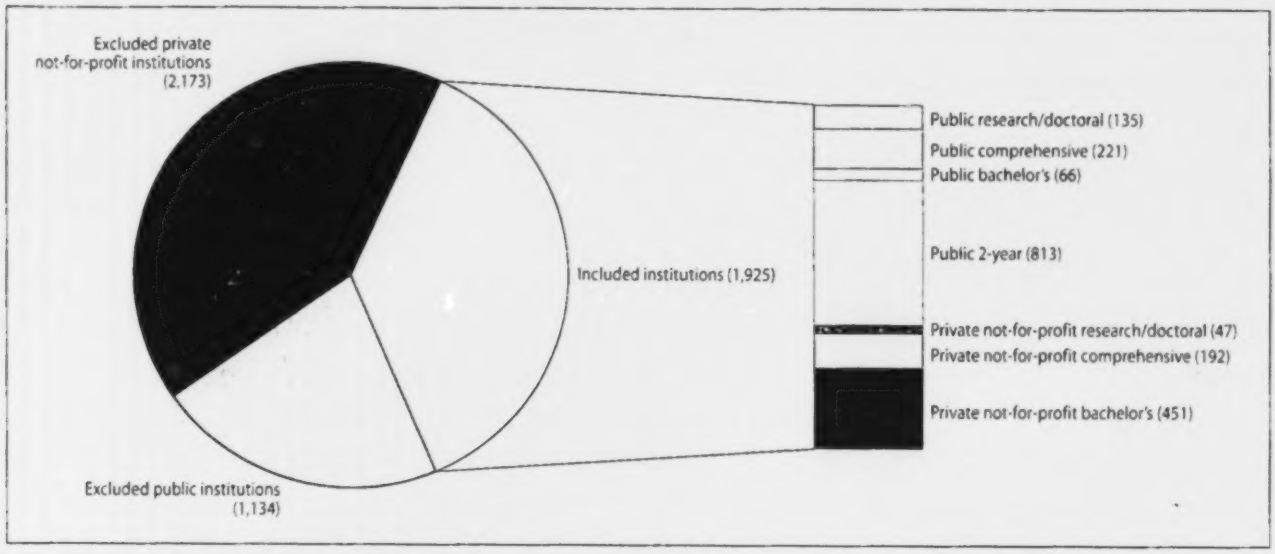
Across all types of public institutions, in-state undergraduate tuition and fees increased annually—by an average of 4.1 percent at research/doctoral institutions, 4.2 percent at comprehensive institutions, 4.3 percent at bachelor's institutions, and 3.4 percent at 2-year institutions—between 1988–89 and 1997–98 (figure C). On average, gross tuition revenue accounted for increasing proportions of total educational and general (E&G)[3] revenue over this period, while revenue from state appropriations declined as a proportion of the total.

Across all types of private not-for-profit institutions, undergraduate tuition and fees increased annually—by an average of 3.6 percent at research/doctoral institutions, 4.1 percent at comprehensive institutions, and 3.7 percent at bachelor's institutions—between 1988–89 and 1995–96 (figure D). On average, gross tuition revenue accounted for increasing proportions of total E&G revenue over this period. At the same time, the proportion of E&G revenue from endowment income and private gifts, grants, and contracts decreased.

[2]The Consumer Price Index for All Urban Consumers (CPI-U, 1982–84 = 100) measures change in relation to a base period—in this case, the average index level for a 36-month period covering 1982, 1983, and 1984—which is set equal to 100.

[3]E&G revenues include tuition and fees, government appropriations, government grants and contracts, private gifts, endowment income, sales and services, and other revenue; they exclude revenue for auxiliary enterprises, hospitals, and independent operations.

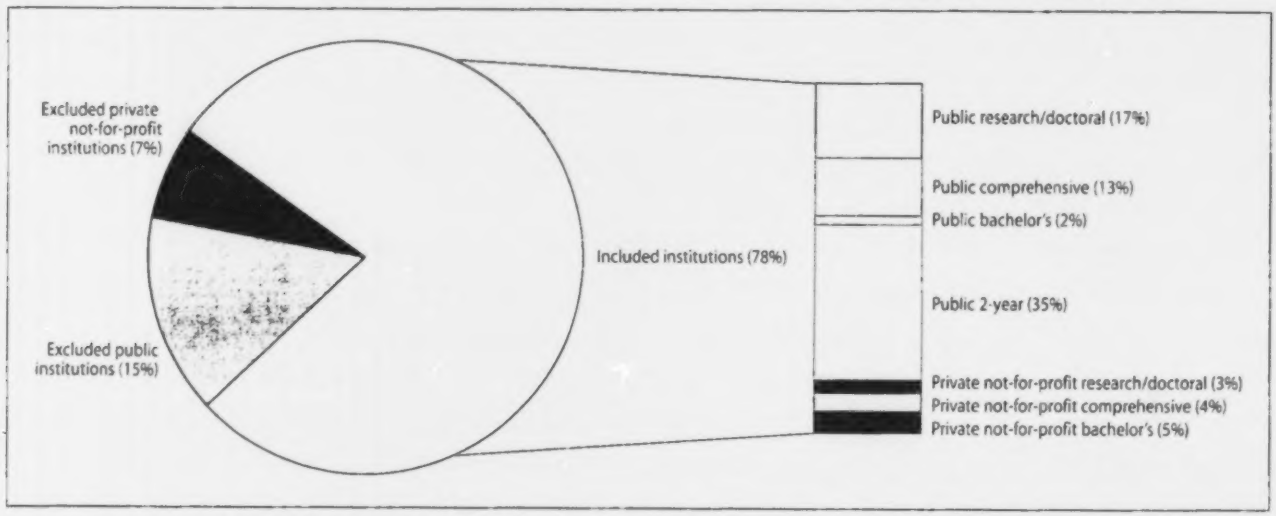
Figure A.—Number of institutions included in and excluded from the final universe, by type of institution: 1997–98



NOTE: Refers to final universe for panels of institutions used in chapters III and IV, based on IPEDS data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System (IPEDS), Full Collection.

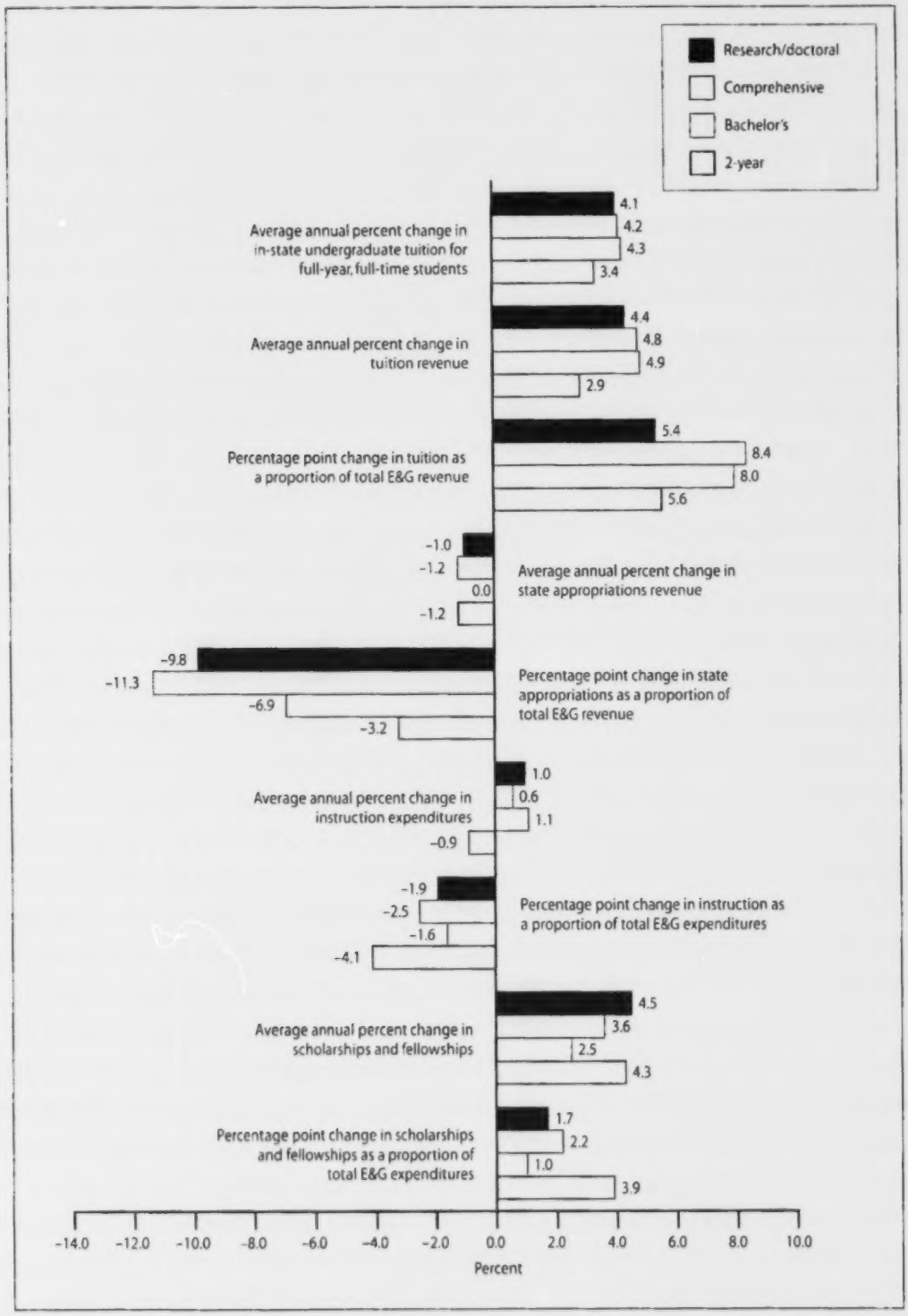
Figure B.—Percent of undergraduate fall enrollment at institutions included in and excluded from the final universe, by type of institution: 1997–98



NOTE: Refers to final universe for panels of institutions used in chapters III and IV, based on IPEDS data. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System (IPEDS), Full Collection.

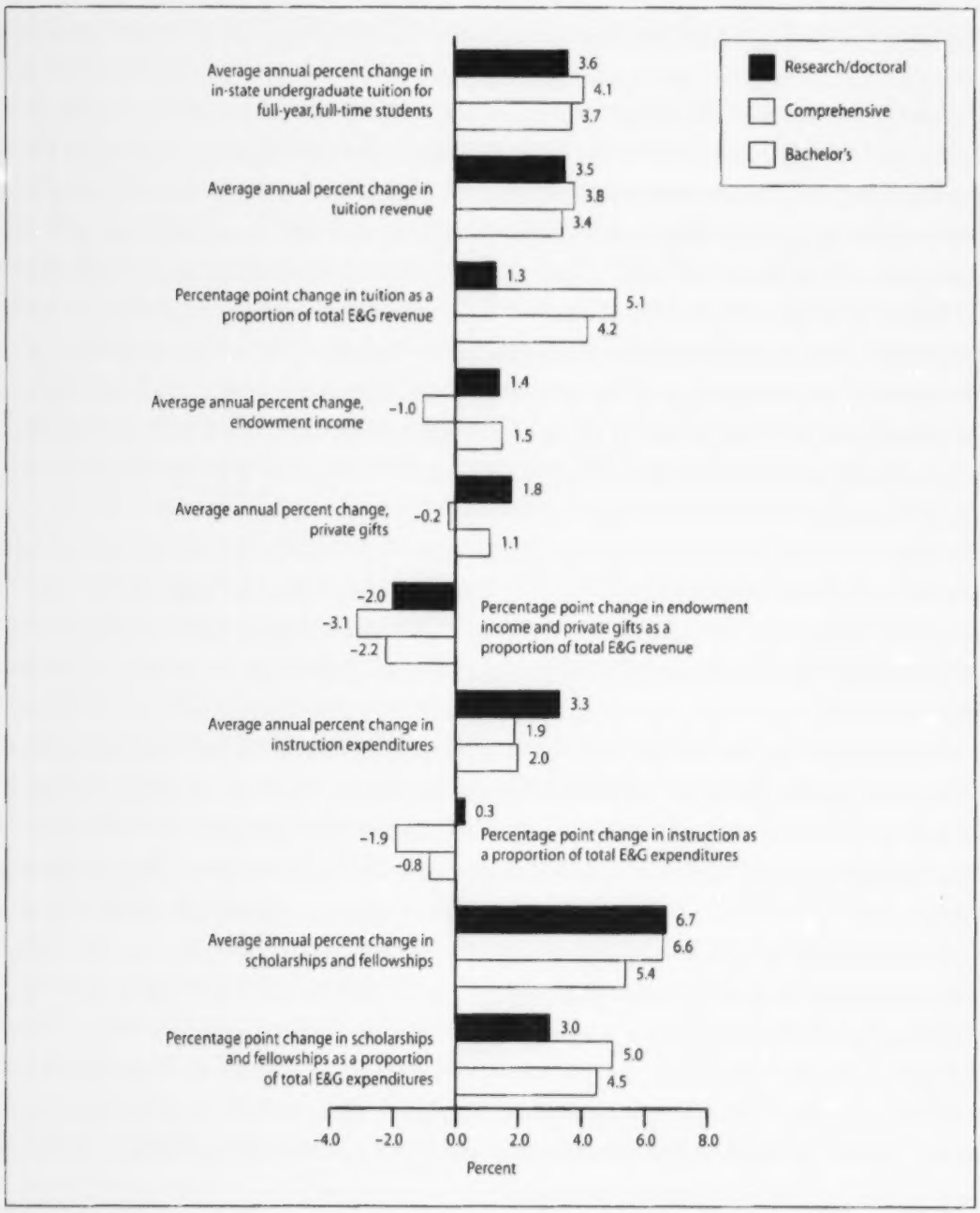
Figure C.—Percent change in various financial indicators at public institutions, by type of institution: 1988–89 to 1997–98



NOTE: E&G signifies educational and general revenue or expenditures. All changes were calculated using constant 1999 dollars.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989 to 1998 Integrated Postsecondary Education Data System (IPEDS), Full Collections.

Figure D.—Percent change in various financial indicators at private not-for-profit 4-year institutions, by type of institution: 1988–89 to 1995–96



NOTE: E&G signifies educational and general revenue or expenditures. All changes were calculated using constant 1999 dollars.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989 to 1996 Integrated Postsecondary Education Data System (IPEDS), Full Collections.

Changes in expenditures over time

On the expenditure side for both public and private not-for-profit institutions, instruction expenditures continued to constitute the largest proportion of total E&G expenditures,[4] but remained flat or decreased as a proportion of E&G expenditures. Meanwhile, institutional scholarships and fellowships constituted one of the fastest growing expenditure categories and made up an increasing proportion of total E&G expenditures (figures C and D).

Relationship of tuition changes with changes in revenues, expenditures, and other factors

For *public 4-year institutions*, revenue from state appropriations remains the largest source of revenue and is the single most important factor associated with changes in tuition. Over the time period examined, state appropriations revenue decreased relative to other sources of revenue for all types of public 4-year institutions, and in fact experienced real annual decreases for research/doctoral and comprehensive institutions (figure C). Decreasing revenue from government appropriations (of which state appropriations make up the majority) was the most important factor associated with tuition increases at public 4-year institutions over the period of analysis. At public research/doctoral institutions, the correlation between change in appropriations and change in tuition was -0.315, a medium-sized relationship (the relationships were small at the other two groups of public 4-year institutions).

Although increases in instruction expenditures were associated with increases in tuition at public 4-year institutions, they did not explain as much of the variation in tuition changes as decreases in state appropriations revenue did. At public research/doctoral institutions, the correlation between change in instruction expenditures and change in tuition was 0.087, a small-sized relationship (the relationships also were small at the other two groups of public 4-year institutions). In addition, the proportion of total E&G expenditures for instruction for all three groups of public 4-year institutions declined slightly over the time period examined.

For *public 2-year institutions*, the model found that changes in revenue and expenditure categories accounted for a very low percentage of the variation in tuition changes over the entire period of analysis—7.3 percent—in comparison with the public 4-year sector, which had values ranging from 39.1 percent for research/doctoral institutions to 42.4 percent for bachelor's institutions. This suggests there are some important differences between public 2-year and 4-year institutions that are not captured in this model.

The findings suggest that prices at *private not-for-profit 4-year institutions* were related to both "internal" institutional budget constraints and "external" market conditions. In the private not-for-profit sector, there is no single overriding factor as strongly related to tuition as state appropriations revenue is in the public 4-year sector.

For all types of private not-for-profit 4-year institutions, certain "internal" factors—higher costs in two areas (institutional aid and average faculty compensation levels) and lower levels of revenue from two nontuition sources (endowment income as well as private gifts, grants, and contracts, together considered philanthropic revenue)—were associated with higher levels of undergraduate tuition. At private not-for-profit research/doctoral institutions, the correlation between the tuition and institutional aid variables (0.801) and the correlation between the tuition and faculty compensation variables (0.547) were both large-sized relationships (the relationships also were large at comprehensive and bachelor's institutions, with the exception of the relationship with institutional aid at bachelor's institutions, which was a medium-sized relationship). The correlation between tuition and philanthropic revenue was 0.511, also a large-sized relationship (the relationships also were large at the other two groups of institutions).

In addition, certain "external" factors—such as the availability of institutional aid for students, the price of attending public institutions in the same state, and per capita income in the state—were associated with tuition levels for all types of private not-for-profit 4-year institutions. At private not-for-profit research/doctoral institutions, the correlation between tuition and average tuition at public 4-year institutions in the state (0.357) and the correlation between tuition and per capita state income (0.294) both were medium-sized relationships (the relationships also were medium-sized at comprehensive and bachelor's institutions).

Some differences were found regarding whether and the extent to which other factors—for example, instruction expenditures—were related to tuition, suggesting that the three types of private not-for-profit 4-year institutions face different competitive environments.

[4] E&G expenditures include instruction, research, public service, academic support, student services, institutional support, plant operations and maintenance, scholarships and fellowships, and transfers; they exclude expenditures for auxiliary enterprises, hospitals, and independent operations.

Patterns in financial aid

Patterns in financial aid differ considerably among the types of institutions (figure E), yet some tendencies emerge within each broad institutional sector.

At *public 4-year institutions*, more than two-thirds of first-time, full-time, degree/certificate-seeking undergraduates received aid from any source, on average. The average percentages receiving aid and the average amounts received varied depending on the type of aid and the type of institution, but the highest figures were for student loan aid at all types of public 4-year institutions.

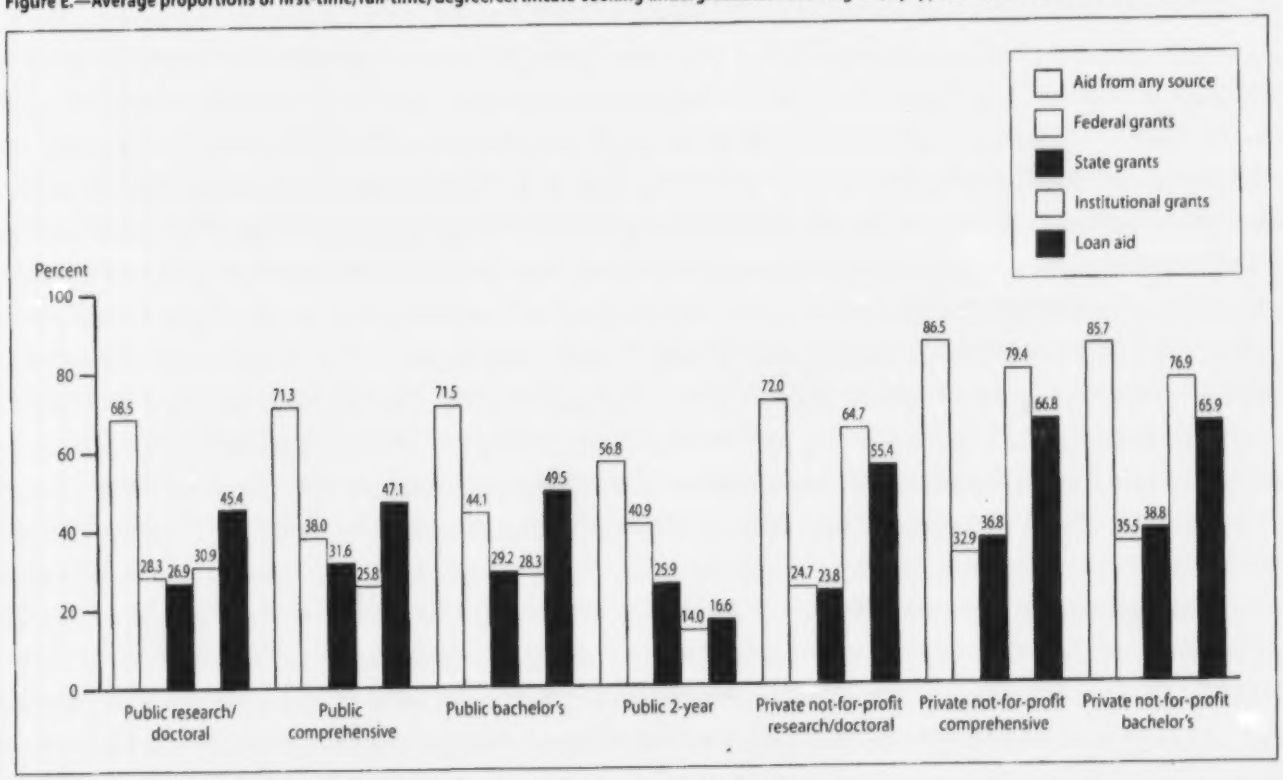
Public 2-year institutions presented a distinctly different situation. At these institutions, on average, 56.8 percent of first-time, full-time, degree/certificate-seeking undergraduates received aid from any source; the highest percentage and the highest average amount were for federal grant aid, and relatively low percentages of students received student loans or institutional aid.

At *private not-for-profit 4-year institutions*, about three-quarters of first-time, full-time, degree/certificate-seeking undergraduates received aid from any source, on average. The highest average percentage of students received institutional aid. Student loan aid was the second highest in terms of the average percentage of students receiving aid.

Relationship of tuition changes with financial aid patterns

Regarding the relationship between financial aid and tuition, the models found no associations between most of the aid variables (federal grants, state grants, and student loans) and changes in tuition in either the public or private not-for-profit sectors. The single exception is institutional aid, which was found to have a positive association with tuition increases for public comprehensive and private not-for-profit comprehensive institutions. The correlation between the change in tuition and the institutional aid variable was 0.103 at public comprehensive institutions and

Figure E.—Average proportions of first-time, full-time, degree/certificate-seeking undergraduates receiving aid, by type of institution and aid source



NOTE: Financial aid data are for either 1997–98 or 1998–99, depending on which year was reported by the institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 Institutional Prices and Student Financial Aid Survey (IPSFA).

0.188 at private not-for-profit comprehensive institutions, both of these being small-sized relationships.

Usefulness of statistical models for testing relationships among revenues, costs, expenditures, and prices

In general, the study shows that available national data can be used to explore aggregate trends in revenues, costs, and prices for broad groups of institutions. Models using these data also can point out associations between revenue and expenditure variables and tuition—for example, as state appropriations for public 4-year institutions decrease, the average undergraduate tuition at this type of institution tends to increase. However, these statistical models are correlational in nature and cannot lead to definitive conclusions regarding the underlying relationships among changes in variables over time. Ideally, new models would need to be constructed to explore the simultaneous direct and indirect effects of costs, revenues, financial aid, market conditions and other external influences, family resources, and college prices.

Finally, even with future improvements in definitions and prospective data collection, the technique of cost analysis will always provide only partial answers to questions about the reasons for price increases at colleges and universities. Given the distinctive characteristics of higher education—such as the availability of nontuition sources of revenue—there is little reason to expect a consistent relationship between costs and prices across all institutions or groups of institutions, even though a specific relationship may be present at one particular institution. Nevertheless, the analyses presented in this report highlight trends and point to associations between variables that can lead to a better understanding of the nature of higher education finance.

Reference

National Commission on the Cost of Higher Education. (1998). *Straight Talk About College Costs and Prices.* Phoenix, AZ: Oryx Press.

Data sources:

NCES: 1988 through 1999 Integrated Postsecondary Education Data System (IPEDS): "Institutional Characteristics Survey" (IPEDS-IC:88–89 through 98–99), "Fall Enrollment Survey" (IPEDS-EF:88 through 99), "Finance Survey" (IPEDS-F:FY88 through FY99), and "Salaries, Tenure, and Fringe Benefits of Full-time Instructional Faculty Survey" (IPEDS-SA:88–89 through 98–99); and 1999 Institutional Prices and Student Financial Aid Survey (IPSFA).

Other: Bureau of Economic Analysis (BEA), Regional Accounts Data, 1988–99.

For technical information, see the complete report:

Cunningham, A.F., Wellman, J.V., Clinedinst, M.E., and Merisotis, J.P. (2001). *Study of College Costs and Prices: 1988–89 to 1997–98* (NCES 2002–157 [volume 1] and 2002–158 [volume 2]).

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To obtain the complete report (NCES 2002–157 [volume 1] and 2002–158 [volume 2]), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (http://nces.ed.gov).

Public Libraries in the United States: Fiscal Year 1999
Adrienne Chute, P. Elaine Kroe, Patricia Garner, Maria Polcari, and Cynthia Jo Ramsey 55

Public Libraries in the United States: Fiscal Year 1999

Adrienne Chute, P. Elaine Kroe, Patricia Garner, Maria Polcari, and Cynthia Jo Ramsey

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the NCES Public Libraries Survey (PLS).

Introduction

The tables in this report summarize information about public libraries in the 50 states and the District of Columbia for state fiscal year (FY) 1999. (Data from two outlying areas, Guam and the Northern Mariana Islands, are also included in the tables,[1] but not in the table totals.) The data were collected through the Public Libraries Survey (PLS), conducted annually by the National Center for Education Statistics (NCES) through the Federal-State Cooperative System (FSCS) for Public Library Data. The FY 99 survey is the 12th in the series.[2]

This report includes information about service measures such as access to the Internet and other electronic services, reference transactions, public service hours, interlibrary loans, circulation, library visits, children's program attendance, and circulation of children's materials. It also includes information about size of collection, staffing, operating income and expenditures, type of geographic service area, type of legal basis, type of administrative structure, and number and type of public library service outlets.[3] Data were imputed for nonresponding libraries.

Highlights

Number of public libraries, population of legal service area, and service outlets

- There were 9,046 public libraries (administrative entities) in the 50 states and the District of Columbia in FY 99.

[1] It is hoped that data from other outlying areas can be included in future years.

[2] Trend data from some of the earlier surveys are discussed in *Public Library Trends Analysis: Fiscal Years 1992–1996* (Glover 2001), a Statistical Analysis Report released by NCES in the summer of 2001.

[3] See the glossary in the full report for definitions of the terms used in the report.

- Ninety-seven percent[4] of the total population of the states and the District of Columbia had access to public library services, and 3 percent did not.
- Eleven percent of the public libraries served 72 percent of the population of legally served areas in the United States; each of these public libraries had a legal service area population of 50,000 or more.
- Eighty-one percent of public libraries had one single direct service outlet (an outlet that provides service directly to the public). Nineteen percent had more than one direct service outlet. Types of direct service outlets include central library outlets, branch library outlets, and bookmobile outlets.
- A total of 1,505 public libraries (17 percent) had one or more branch library outlets, with a total of 7,337 branches. The total number of central library outlets was 8,883. The total number of stationary outlets (central library outlets and branch library outlets) was 16,220. Nine percent of public libraries had one or more bookmobile outlets, with a total of 907 bookmobiles.

Legal basis and interlibrary relationships

- In FY 99, 55 percent of public libraries were part of a municipal government, 11 percent were part of a county/parish, 1 percent were part of a city/county, 5 percent had multijurisdictional legal basis under an intergovernmental agreement, 10 percent were nonprofit association or agency libraries, 3 percent were part of a school district, and 8 percent were separate government units known as library districts. Six percent reported their legal basis as "other."
- Seventy-five percent of public libraries were members of a system, federation, or cooperative service, while 22 percent were not.[5] Three percent served as the headquarters of a system, federation, or cooperative service.

Operating income and expenditures

- In FY 99, 78 percent of public libraries' total operating income of about $7.1 billion came from local sources, 13 percent from state sources, 1 percent from federal sources, and 9 percent from other sources, such as monetary gifts and donations, interest, library fines, and fees.
- Nationwide, the average total per capita[6] operating income for public libraries was $27.20. Of that, $21.13 was from local sources, $3.45 from state sources, $.17 from federal sources, and $2.44 from other sources.
- Per capita operating income from local sources was under $3.00 for 10 percent of public libraries, $3.00 to $14.99 for 41 percent of libraries, $15.00 to $29.99 for 31 percent of libraries, and $30.00 or more for 18 percent of libraries.
- Total operating expenditures for public libraries were $6.6 billion in FY 99. Of this, 64 percent was expended for paid staff and 15 percent for the library collection.
- Thirty-four percent of public libraries had operating expenditures of less than $50,000, 40 percent expended $50,000 to $399,999, and 26 percent expended $400,000 or more.
- Nationwide, the average per capita operating expenditure for public libraries was $25.25. The highest average per capita operating expenditure in the 50 states and the District of Columbia was $46.41 and the lowest was $11.00.
- Expenditures for library collection materials in electronic format were 1 percent of total operating expenditures for public libraries. Expenditures for electronic access were 3 percent of total operating expenditures.

Staff and collections

- Public libraries had a total of 127,890 paid full-time-equivalent (FTE) staff in FY 99, or 12.18 paid FTE staff per 25,000 population. Of these, 23 percent, or 2.7 per 25,000 population, were librarians with the ALA-MLS,[7] and 10 percent were librarians by title but did not have the ALA-MLS. Sixty-seven percent of the staff were in other positions.
- Nationwide, public libraries had 747 million books and serial volumes in their collections, or 2.8 volumes per capita. By state, the number of volumes per capita ranged from 1.7 to 5.0.
- Public libraries nationwide had 30 million audio materials and 19 million video materials in their collections.

[4]This percentage was derived by dividing the total unduplicated population of legal service areas in the United States by the sum of the official state total population estimates as reported by the 50 states and the District of Columbia. (Also see *Data File: Public Libraries Survey: Fiscal Year 1999*, forthcoming on the NCES Web Site.)

[5]Libraries that identify themselves as the headquarters of a system, federation, or cooperative service are not included in the count of members of a system, federation, or cooperative service.

[6]Per capita figures are based on the total unduplicated population of legal service areas in the 50 states and the District of Columbia, not on the state total population estimates.

[7]Librarians with master's degrees from programs of library and information studies accredited by the American Library Association.

- Nationwide, public libraries provided 5.1 materials in electronic format per 1,000 population (e.g., CD-ROMs, magnetic tapes, and magnetic disks).

Library services

- Nationwide, 92 percent of public libraries had access to the Internet. Eighty-three percent of all public libraries made the Internet available to patrons directly or through a staff intermediary, 5 percent of public libraries made the Internet available to patrons through a staff intermediary only, and 4 percent of public libraries made the Internet available only to library staff.
- Ninety-seven percent[8] of the unduplicated population of legal service areas had access to the Internet through their local public library.
- Nationwide, 78 percent of public libraries provided access to electronic services.[9]
- Total nationwide circulation of public library materials was 1.7 billion, or 6.4 materials circulated per capita. The highest circulation per capita in the 50 states and the District of Columbia was 12.4 and the lowest was 2.7.
- Nationwide, 14 million library materials were loaned by public libraries to other libraries.
- Nationwide, reference transactions in public libraries totaled 295 million, or 1.1 reference transactions per capita.
- Nationwide, library visits in public libraries totaled 1.1 billion, or 4.3 library visits per capita.

Children's services

- Nationwide, circulation of children's materials was 612 million, or 36 percent of total circulation. Attendance at children's programs was 48 million.

[8]This percentage was derived by summing the unduplicated population of legal service areas for (1) all public libraries in which the Internet was used by patrons through a staff intermediary only and (2) all public libraries in which the Internet was used by patrons either directly or through a staff intermediary, and then dividing the total by the unduplicated population of legal service areas in the United States. (Also see *Data File: Public Libraries Survey: Fiscal Year 1999*, forthcoming on the NCES Web Site.)

[9]Access to electronic services refers to electronic services (e.g., bibliographic and full-text databases, multimedia products) provided by the library due to subscription, lease, license, consortial membership or agreement. It includes full-text serial subscriptions and electronic databases received by the library or an organization associated with the library.

Reference

Glover, D. (2001). *Public Library Trends Analysis: Fiscal Years 1992–1996* (NCES 2001-324). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data source: The NCES Public Libraries Survey (PLS), fiscal year 1999.

For technical information, see the complete report:

Chute, A., Kroe, P.E., Garner, P., Polcari, M., and Ramsey, C.J. (2002). *Public Libraries in the United States: Fiscal Year 1999* (NCES 2002-308).

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Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy
Mariann Lemke, Christopher Calsyn, Laura Lippman, Leslie Jocelyn, David Kastberg, Yan Yun Liu, Stephen Roey, Trevor Williams, Thea Kruger, and Ghedam Bairu 59

Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy

Mariann Lemke, Christopher Calsyn, Laura Lippman, Leslie Jocelyn, David Kastberg, Yan Yun Liu, Stephen Roey, Trevor Williams, Thea Kruger, and Ghedam Bairu

This article was originally published as* Highlights From the 2000 Program for International Student Assessment (PISA), *a brochure summarizing key findings from the* Outcomes of Learning *report cited above. The sample survey data are from PISA.

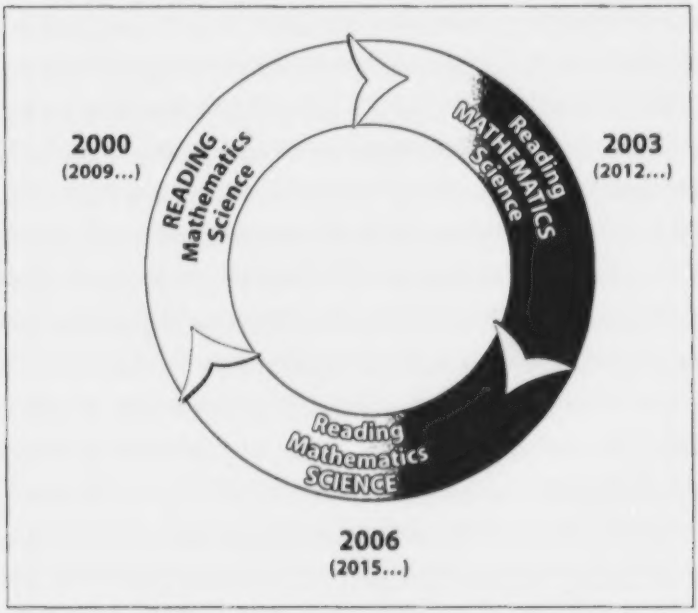
Introduction

The Program for International Student Assessment (PISA) is a new system of international assessments that focus on 15-year-olds' capabilities in reading literacy, mathematics literacy, and science literacy. PISA also measures general or cross-curricular competencies such as learning strategies.

PISA will be implemented on a 3-year cycle that began in 2000. Each PISA assessment cycle focuses on one particular subject, although all three are assessed in each cycle. In this first cycle, PISA 2000, reading literacy is the major focus, occupying roughly two-thirds of assessment time. In 2003, PISA will focus on mathematics literacy, and in 2006, on science literacy (figure 1).

PISA will report on performance in reading literacy, mathematics literacy, and science literacy every 3 years, and provide a more detailed look at each domain in the years when it is the major focus. For instance, average scores for specific reading processes, such as retrieving information, interpreting texts, and reflecting on texts, as well as a combined reading literacy average score are available for PISA 2000. Only single measures of mathematics and science literacy are available in PISA 2000, with more specific information to be provided for these domains in subsequent cycles. These cycles will allow countries to compare changes in trends for each of the three content areas over time. Future cycles will also include further development of the assessment of cross-curricular

Figure 1.— Program for International Student Assessment (PISA) assessment cycle



NOTE: The subject in all capital letters in each assessment cycle is the major domain for that cycle.

SOURCE: Previously published as figure 1 on p. 2 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002–115]).

competencies, such as problem solving in 2003 and use of information and communications technology in 2006.

PISA is sponsored by the Organization for Economic Cooperation and Development (OECD), an intergovernmental organization of 30 industrialized nations. In 2000, 32 countries participated in PISA, including 28 OECD countries and 4 non-OECD countries (figure 2).

PISA's purpose is to represent the overall *yield* of learning for 15-year-olds. PISA assumes that by the age of 15, young people have had a series of learning experiences, both in and out of school, that allow them to perform at particular levels in reading, mathematics, and science literacy. Other national and international studies have a strong link to curriculum frameworks and seek to measure students' mastery of specific knowledge, skills, and concepts. PISA is designed to measure "literacy" more broadly. The unique contribution of PISA lies in its focus on assessing students' knowledge and skills in reading, mathematics, and science in the context of everyday situations. As 15-year-olds begin to make the transition to adult life, they not only need to know how to read, or understand particular mathematical formulas or scientific concepts, but they also need to be able to apply knowledge and skills in all of the different situations they will encounter in their lives. By focusing on the age of 15, PISA allows countries to compare outcomes of learning that reflect both societal and educational system influences, as well as students' preparedness for adult life as they near the end of compulsory schooling.

The United States has been actively involved in the development of PISA since its inception, believing that PISA's differences from other studies allow it to complement the picture of U.S. performance obtained from other studies and provide a new perspective on U.S. education in an international context. This report, produced by the U.S. Department of Education's National Center for Education Statistics (NCES), focuses on U.S. results from PISA 2000. Following are highlights of the findings presented in the complete report.

Reading Literacy

PISA measures how well 15-year-olds are able to apply different reading processes to a wide range of reading materials, such as the kinds of forms they receive from their

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Figure 2.—Participating countries in the Program for International Student Assessment (PISA) 2000

OECD countries

Australia	Japan
Austria	Korea, Republic of
Belgium	Luxembourg
Canada	Mexico
Czech Republic	Netherlands
Denmark	New Zealand
Finland	Norway
France	Poland
Germany	Portugal
Greece	Spain
Hungary	Sweden
Iceland	Switzerland
Ireland	United Kingdom
Italy	United States

Non-OECD countries

Brazil	Liechtenstein
Latvia	Russian Federation

NOTE: Although the Netherlands participated in the Program for International Student Assessment (PISA) in 2000, technical problems with its sample prevent its results from being discussed here. For information on the results for the Netherlands, see *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000* (OECD 2001).

SOURCE: Previously published as figure 2 on p. 3 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002–115]).

governments, the kinds of articles they read in their local newspapers, the kinds of manuals they read for work or school, or the kinds of books or magazines they read for entertainment.

PISA scores are reported on a scale of 0 to 1,000, with a mean of 500 and a standard deviation of 100. Most scores fall between 200 and 800. The three specific reading processes on which PISA 2000 reports are

- *retrieving information*—the ability to locate one or more pieces of information in a text;
- *interpreting texts*—the ability to construct meaning and draw inferences from one or more parts of a text; and
- *reflecting on texts*—the ability to relate a text to one's own experience, knowledge, and ideas.

Average subscale scores are reported for each of these three reading processes. Together, these three subscale scores make up the combined reading literacy score.

National averages

- On the combined reading literacy scale for PISA 2000, U.S. 15-year-olds perform about as well on average as 15-year-olds in most of the 27 participating OECD countries. Students in Canada, Finland, and New Zealand outperform U.S. students. U.S. students perform at the same level as students in 19 other participating OECD countries and Liechtenstein. U.S. students perform better on average than students from the OECD nations of Greece, Luxembourg, Mexico, and Portugal (figure 3).
- For each of the three specific reading process subscales, *retrieving information*, *interpreting texts*, and *reflecting on texts*, U.S. scores are not different

Figure 3.—Combined reading literacy average scores and average subscale scores of 15-year-olds, by country: 2000

Average is significantly higher than the U.S. average.
Average is not significantly different from the U.S. average.
Average is significantly lower than the U.S. average.

Combined reading literacy score		Reading subscales: Retrieving information		Reading subscales: Interpreting texts		Reading subscales: Reflecting on texts	
OECD countries	Average	OECD countries	Average	OECD countries	Average	OECD countries	Average
Finland	546	Finland	556	Finland	555	Canada	542
Canada	534	Australia	536	Canada	532	United Kingdom	539
New Zealand	529	New Zealand	535	Australia	527	Ireland	533
Australia	528	Canada	530	Ireland	526	Finland	533
Ireland	527	Korea, Republic of	530	New Zealand	526	Japan	530
Korea, Republic of	525	Japan	526	Korea, Republic of	525	New Zealand	529
United Kingdom	523	Ireland	524	Sweden	522	Australia	526
Japan	522	United Kingdom	523	Japan	518	Korea, Republic of	526
Sweden	516	Sweden	516	Iceland	514	Austria	512
Austria	507	France	515	United Kingdom	514	Sweden	510
Belgium	507	Belgium	515	Belgium	512	**United States**	507
Iceland	507	Norway	505	Austria	508	Norway	506
Norway	505	Austria	502	France	506	Spain	506
France	505	Iceland	500	Norway	505	Iceland	501
United States	504	**United States**	499	**United States**	505	Denmark	500
Denmark	497	Switzerland	498	Czech Republic	500	Belgium	497
Switzerland	494	Denmark	498	Switzerland	496	France	496
Spain	493	Italy	488	Denmark	494	Greece	495
Czech Republic	492	Spain	483	Spain	491	Switzerland	488
Italy	487	Germany	483	Italy	489	Czech Republic	485
Germany	484	Czech Republic	481	Germany	488	Italy	483
Hungary	480	Hungary	478	Poland	482	Hungary	481
Poland	479	Poland	475	Hungary	480	Portugal	480
Greece	474	Portugal	455	Greece	475	Germany	478
Portugal	470	Greece	450	Portugal	473	Poland	477
Luxembourg	441	Luxembourg	433	Luxembourg	446	Mexico	446
Mexico	422	Mexico	402	Mexico	419	Luxembourg	442
OECD average	500	OECD average	498	OECD average	501	OECD average	502
Non-OECD countries		Non-OECD countries		Non-OECD countries		Non-OECD countries	
Liechtenstein	483	Liechtenstein	492	Liechtenstein	484	Liechtenstein	468
Russian Federation	462	Latvia	451	Russian Federation	468	Latvia	458
Latvia	458	Russian Federation	451	Latvia	459	Russian Federation	455
Brazil	396	Brazil	365	Brazil	400	Brazil	417

NOTE: Although the Netherlands participated in the Program for International Student Assessment (PISA) in 2000, technical problems with its sample prevent its results from being discussed here. For information on the results for the Netherlands, see *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000* (OECD 2001). The OECD average is the average of the national averages of 27 OECD countries. Because PISA is principally an OECD study, the results for non-OECD countries are displayed separately from those of the OECD countries and not included in the OECD average.

SOURCE: Previously published as figure 3 on p. 11 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002-115]).

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from the OECD averages. Canada and Finland outscore the United States on each of the three reading process subscales, and the United States outscores at least seven other nations on each measure.

- There are clear consistencies across the three reading process subscales of *retrieving information*, *interpreting texts*, and *reflecting on texts*, which carry through to the combined reading literacy score.
- Fifteen countries, or about half of the countries participating in PISA 2000, show less variation in student performance than the United States. The remaining countries show similar variation in student performance to the United States, and U.S. variation is similar to the OECD average.
- The top 10 percent of OECD students score 623 or higher on the combined reading literacy scale. In the United States, 13 percent of students achieve this score or better, a percentage not different from the OECD top 10 percent benchmark. Three countries (Canada, Finland, and New Zealand) have a higher percentage of students scoring in the OECD top 10 percent, while 14 countries have a lower percentage.

Reading literacy levels

PISA uses five levels to describe student performance in reading literacy. In order to reach a particular level, a student must be able to answer correctly a majority of items at that level. The percentage of 15-year-olds at each level of reading literacy for participating countries is shown in figure 4.

- Percentages of U.S. students across the literacy levels are similar to the OECD average percentages, except at level 5. In the United States, 12 percent of 15-year-olds read at level 5, the highest proficiency level, a percentage higher than the OECD average. Level 1 encompasses 12 percent of U.S. students, and 6 percent of U.S. 15-year-olds are below level 1.
- Percentages of U.S. 15-year-olds across the levels for the three reading process subscales are consistent with the percentages for the combined reading literacy scale. That is, about 12 percent of U.S. 15-year-olds are at level 5 for *retrieving information*, *interpreting texts*, and *reflecting on texts*, and for the combined reading literacy scale; about 21 percent are at level 4 for these three subscales and the combined reading literacy scale; and so on.
- Looking at the cumulative percentages of students from level to level on the combined reading literacy scale, about one-third of U.S. students perform at the two highest levels, level 4 and level 5. About 60 percent of students in the United States perform at level 3 or above, and over 80 percent at level 2 or above.

Mathematics and Science Literacy

PISA's mathematics and science literacy assessments focus on 15-year-olds' abilities to apply mathematical and scientific principles and thinking in a wide variety of situations. Figure 5 displays national averages in mathematics and science literacy.

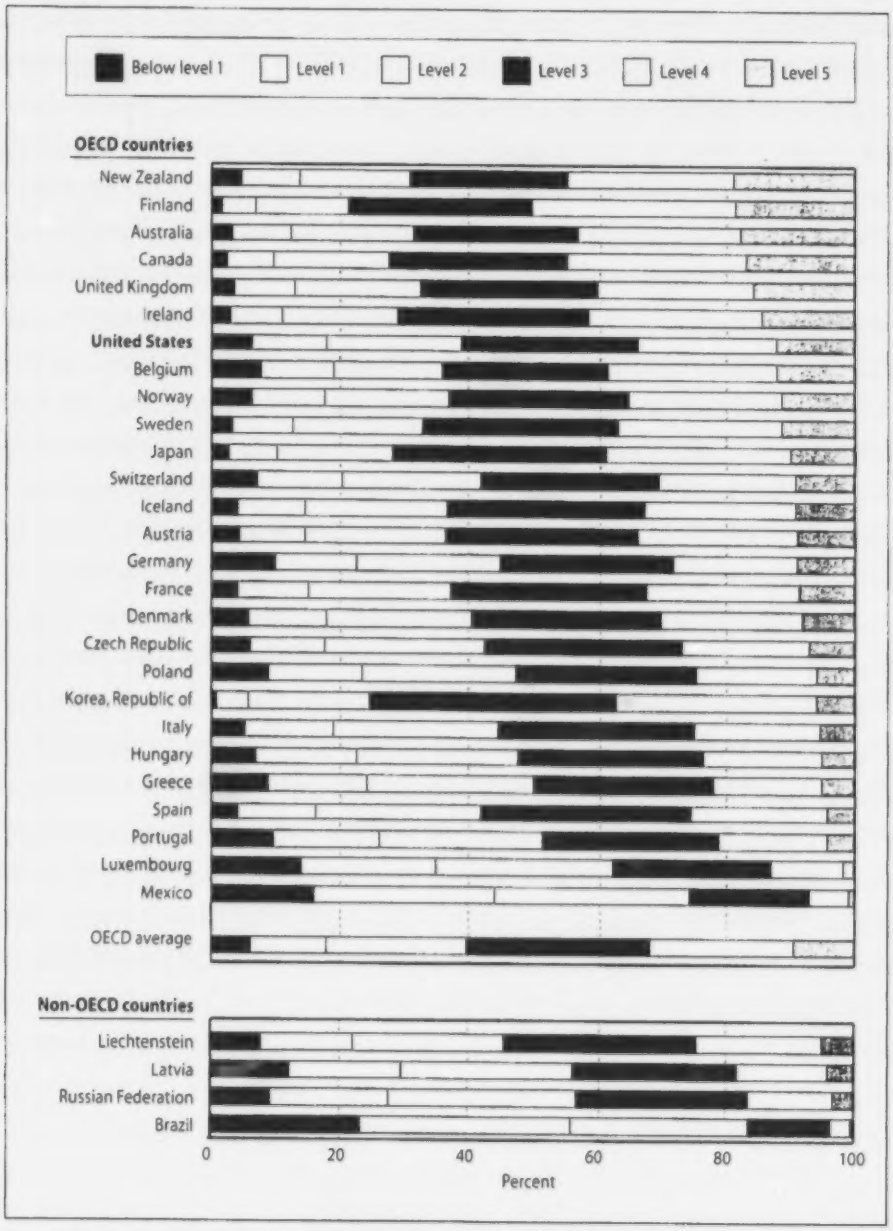
- In both mathematics and science literacy, the U.S. average does not differ from the OECD average. Eight countries outperform the United States in mathematics literacy, and seven have higher average scores for science literacy. The United States has higher average scores than seven countries for mathematics literacy and seven for science literacy.
- The top 10 percent of students in OECD countries score 625 or higher in mathematics literacy. In the United States, 9 percent of students achieve this score or better, a percentage not different from the OECD top 10 percent benchmark. Eight countries have a greater proportion of students scoring in the OECD top 10 percent, while six countries have a smaller proportion.
- For science literacy, the top 10 percent of OECD students score 627 or higher. In the United States, 10 percent of students achieve this score or better. Four countries have a higher percentage of students scoring in the OECD top 10 percent, while seven countries have a lower percentage.

Demographic Profiles of Reading, Mathematics, and Science Literacy

In the United States and many other countries, policymakers are not only interested in overall achievement but also in achievement by specific population groups.

- On the combined reading literacy scale, female 15-year-olds outperform male 15-year-olds in every country. On the PISA 2000 mathematics literacy assessment, performance of males and females in the United States is similar, as it is in 16 other countries; 14 countries show higher performance for males than females for mathematics literacy. For most countries (26 out of 31 countries), including the United States, males and females perform similarly on the science literacy assessment (figure 6).

Figure 4.—Percentage distribution of 15-year-olds by combined reading literacy scores, by level and by country: 2000



NOTE: The Program for International Student Assessment (PISA) uses five levels of performance to describe student performance. In order to reach a particular level, a student must be able to correctly answer a majority of items at that level. Students were classified into reading levels according to their scores. Although the Netherlands participated in PISA in 2000, technical problems with its sample prevent its results from being discussed here. For information on the results for the Netherlands, see *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000* (OECD 2001). The OECD average is the average of the national averages of 27 OECD countries. Because PISA is principally an OECD study, the results for non-OECD countries are displayed separately from those of the OECD countries and not included in the OECD average.

SOURCE: Previously published as figure 8 on p. 19 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002–115]).

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Figure 5.—Mathematics and science literacy average scores of 15-year-olds, by country: 2000

Mathematics literacy	
OECD countries	Average
Japan	557
Korea, Republic of	547
New Zealand	537
Finland	536
Australia	533
Canada	533
Switzerland	529
United Kingdom	529
Belgium	520
France	517
Austria	515
Denmark	514
Iceland	514
Sweden	510
Ireland	503
Norway	499
Czech Republic	498
United States	493
Germany	490
Hungary	488
Spain	476
Poland	470
Italy	457
Portugal	454
Greece	447
Luxembourg	446
Mexico	387
OECD average	500

Science literacy	
OECD countries	Average
Korea, Republic of	552
Japan	550
Finland	538
United Kingdom	532
Canada	529
New Zealand	528
Australia	528
Austria	519
Ireland	513
Sweden	512
Czech Republic	511
France	500
Norway	500
United States	499
Hungary	496
Iceland	496
Belgium	496
Switzerland	496
Spain	491
Germany	487
Poland	483
Denmark	481
Italy	478
Greece	461
Portugal	459
Luxembourg	443
Mexico	422
OECD average	500

Non-OECD countries	
Liechtenstein	514
Russian Federation	478
Latvia	463
Brazil	334

Non-OECD countries	
Liechtenstein	476
Russian Federation	460
Latvia	460
Brazil	375

☐ Average is significantly higher than the U.S. average.

☐ Average is not significantly different from the U.S. average.

☐ Average is significantly lower than the U.S. average.

NOTE: Although the Netherlands participated in the Program for International Student Assessment (PISA) in 2000, technical problems with its sample prevent its results from being discussed here. For information on the results for the Netherlands, see *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000* (OECD 2001). The OECD average is the average of the national averages of 27 OECD countries. Because PISA is principally an OECD study, the results for non-OECD countries are displayed separately from those of the OECD countries and not included in the OECD average.

SOURCE: Previously published as figure 10 on p. 26 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002–115]).

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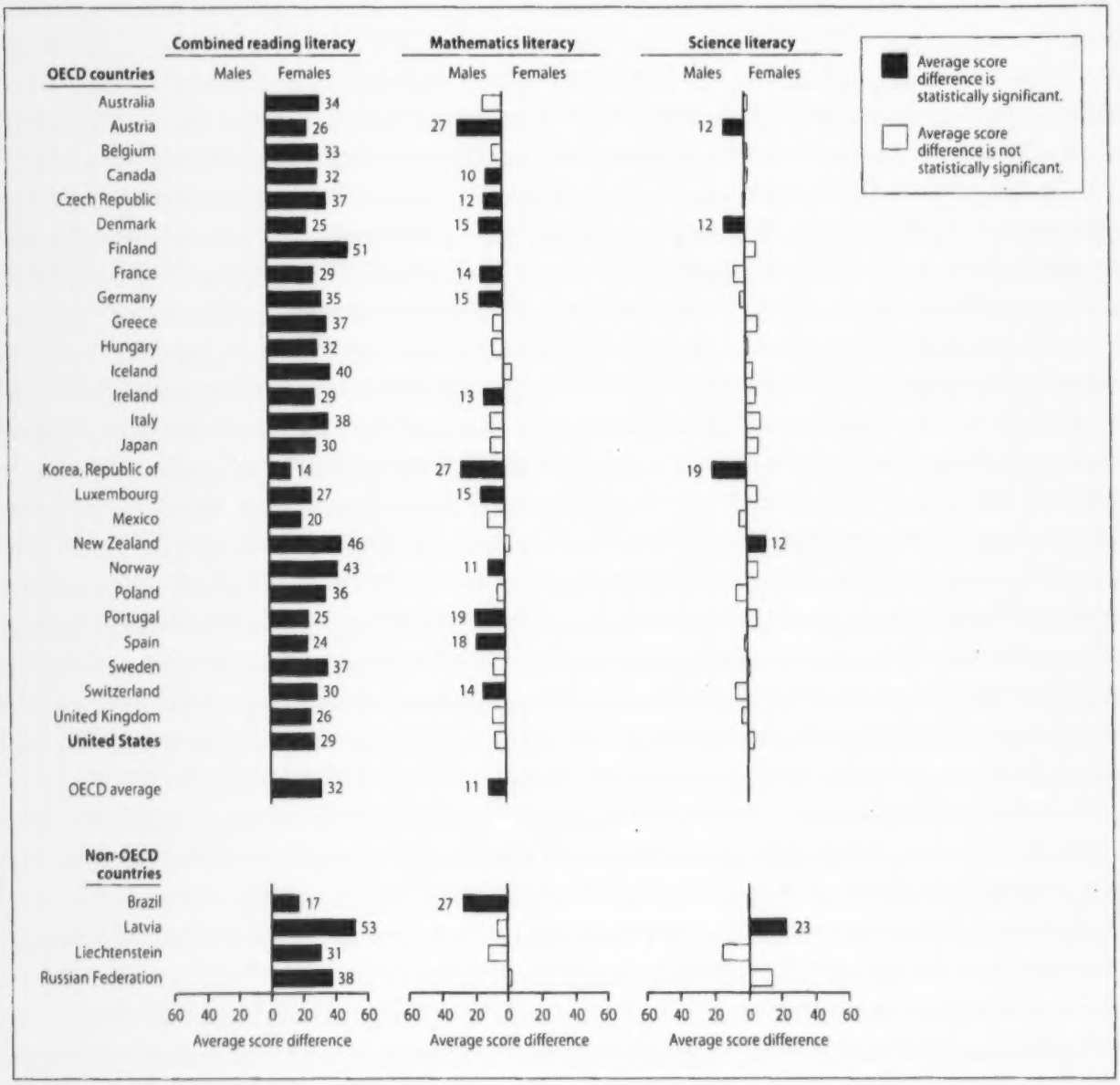
Figure 6.—Differences in average scores in reading, mathematics, and science literacy of 15-year-olds by gender, by country: 2000



NOTE: Each bar above represents the average score difference between males and females on combined reading, mathematics, or science literacy. Some of these differences are statistically significant and indicated by darker bars. For instance, the United States has a 29-point score difference favoring females in combined reading literacy, which is statistically significant. The score differences between U.S. males and females in mathematics and science literacy are 7 points and 5 points, respectively, but neither is a statistically significant difference. Average score difference is calculated by subtracting scores of males from scores of females. Detail may not add to totals because of rounding. Although the Netherlands participated in the Program for International Student Assessment (PISA) in 2000, technical problems with its sample prevent its results from being discussed here. For information on the results for the Netherlands, see *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000* (OECD 2001). The OECD average is the average of the national averages of 27 OECD countries. Because PISA is principally an OECD study, the results for non-OECD countries are displayed separately from those of the OECD countries and not included in the OECD average.

SOURCE: Previously published as figure 15 on p. 39 of the complete report that this article summarizes (*Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* [NCES 2002–115]).

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- In the United States, parents' education is strongly linked to differences in student performance in reading, mathematics, and science literacy.
- In the United States, the relationship of socioeconomic status to literacy levels is about the same for each subject. Increases in socioeconomic status are associated with increases in scores for reading literacy, mathematics literacy, and science literacy. Most participating countries do not differ significantly from the United States in terms of the strength of the relationship between socioeconomic status and literacy in any subject.
- In the United States, parents' national origin is linked to performance in reading literacy and mathematics literacy only for those students with two foreign-born parents compared with students with two native-born parents. There is no difference in science literacy achievement between students with native- and foreign-born parents.
- In the United States, 89 percent of students report that they speak the language of the assessment (English) at home most of the time. In the United States and most other countries, the reading literacy achievement of students who speak the test language at home is higher than that of students not speaking this language at home. The United States and most other countries also show advantages for test-language speakers in mathematics and science literacy.
- The pattern of between-group differences for racial and ethnic groups in the United States is identical across the three literacy areas. In reading, mathematics, and science, the average literacy scores for Whites and "other"* students are higher than for Hispanic and Black students.

A First Step in Cross-Curricular Competencies

One of PISA's main objectives is to measure student performance on general or nonacademic learning outcomes in addition to outcomes for reading, mathematics, and science literacy. As a first step toward the measurement of cross-curricular competencies, in PISA 2000, student questionnaire items sought information in two major areas, student attitudes toward reading and learning strategies.

- Thirty percent of U.S. 15-year-olds agree or strongly agree that reading is a favorite hobby, a lower percentage than the OECD average. Percentages of students agreeing that reading is a favorite hobby range from 62 percent in Mexico to 24 percent in Norway.
- In every country, females agree more frequently than males that reading is a favorite hobby. Thirty-seven percent of females in the United States agree that reading is a favorite hobby, compared to 22 percent of males.
- About half of U.S. 15-year-olds report trying to memorize as much as possible often or always when studying. The U.S. percentage in this case is higher than the OECD average, suggesting that a greater proportion of U.S. students often use memorization as a learning strategy than the average proportion of OECD country students.
- The percentages of students who respond that they often or always try to relate new material to things they have already learned range from 15 percent in Italy to 90 percent in Hungary. Fifty-nine percent of U.S. students report using this strategy frequently, a higher percentage than the OECD average.

Reference

Organization for Economic Cooperation and Development. (2001). *Knowledge and Skills for Life: First Results From the OECD Programme for International Student Assessment (PISA) 2000*. Paris: Author.

*"The "other" group comprises students identifying themselves as American Indian/Alaska Native, Native Hawaiian/Pacific Islander, or multiracial.

Data source: The Program for International Student Assessment (PISA), 2000.

For technical information, see the complete report:

Lemke, M., Calsyn, C., Lippman, L., Jocelyn, L., Kastberg, D., Liu, Y.Y., Roey, S., Williams, T., Kruger, T., and Bairu, G. (2001). *Outcomes of Learning: Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy* (NCES 2002–115).

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For questions about content, contact pisa@ed.gov.

To obtain the complete report (NCES 2002–115), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (http://nces.ed.gov).

To obtain the Highlights brochure used for this article (NCES 2002–116), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (http://nces.ed.gov).

Federal Support for Education: Fiscal Years 1980 to 2001
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Federal Support for Education: Fiscal Years 1980 to 2001

Charlene M. Hoffman

This article was excerpted from the Introduction and Highlights of the report of the same name. The data are primarily from the U.S. Office of Management and Budget, the U.S. Department of Education's Budget Service, the National Science Foundation, and the budget offices of other federal agencies.

Introduction

This report attempts to provide a comprehensive picture of total federal financial support for education since fiscal year (FY) 1980.[1] In addition to Department of Education programs, the many other federal programs that support education are included. The report also includes other types of federal support that are sometimes overlooked.

Categories of federal support

This report puts federal education funding into three categories: on-budget funds, off-budget support, and nonfederal funds generated by federal programs.

On-budget funds are provided through programs funded by congressional appropriations. Although some consolidation of education programs in one federal agency was achieved with the establishment of the U.S. Department of Education in 1980, many large and significant federal education programs remain outside the Department. In addition, many federal programs involving education have other primary purposes. In order to account fully for all federal support for education, programs residing in other federal departments and agencies having significant educational components are included, even if they have additional purposes.

Off-budget support is federal money that has been excluded from the budget by law. Off-budget support in this report consists of the loan capital that is provided directly by the federal government under the William D. Ford Federal Direct Student Loan (FDSL) program.

Nonfederal funds generated by federal programs result from federal loan guarantees and interest subsidies to support loan capital raised through various private and public sources. Nonfederal funds are also made available for education purposes when federal programs require matching funds or offer incentives and subsidies. Almost all such nonfederal education funds go to postsecondary education.

[1] Some data have been revised from *Federal Support for Education: Fiscal Years 1980 to 2000* (Hoffman 2000) and *Digest of Education Statistics: 2000* (Snyder and Hoffman 2001). In addition to the data covering FY 80 to FY 2001, appendix tables in the full report include historical data from FY 65, FY 70, and FY 75.

Federal tax expenditures

Education programs can be supported either by direct funding or by indirect funding mechanisms such as tax expenditures. In this report, federal tax expenditures include only reductions in tax revenue received by the federal government due to deductions, exemptions, and credits allowable in the tax code. Unless otherwise noted, tables and discussions of federal support in this report do not include federal tax expenditures.

Outlays versus appropriations or obligations

To the extent possible, outlays were used in this report rather than appropriations or obligations, with the exception that obligations were used for academic research at institutions of higher education. Outlays are the actual amount of dollars spent. Appropriations are the amount of funds made available in legislation providing funds for federal programs. Obligations are spending commitments by the federal government that will require outlays either immediately or in the future.

Highlights

The federal government provides support for education well beyond programs funded through the Department of Education. Federal support for education, excluding estimated federal tax expenditures, was an estimated $128.1 billion in FY 2001 (table A). In current dollars,[2] this represents an increase of $65.3 billion, or 104 percent, since FY 90. In constant dollars, federal support for education increased 56 percent between FY 90 and FY 2001.

For FY 2001, on-budget federal funds for education programs were estimated to be $92.8 billion—an increase of 80 percent since FY 90 in current dollars or an increase of 37 percent in constant dollars. Off-budget support and

[2]Current dollars are amounts that have not been adjusted for inflation. Constant dollars are amounts that have been adjusted by means of price indexes to eliminate inflationary factors and allow direct comparison across years. In this report, constant dollars were computed based on the federal funds composite deflator from the U.S. Office of Management and Budget (OMB 2001). The inflation index rose 104.5 percent between FY 80 and FY 2001.

Table A.—Federal on-budget funds for education, by level or other educational purpose, and off-budget support and nonfederal funds generated by federal legislation: Fiscal years 1980, 1985, 1990, and 2001

Level	FY 80	FY 85	FY 90	FY 2001[1]
	[In billions of **current** dollars]			
On-budget	$34.5	$39.0	$51.6	$92.8
Elementary and secondary	16.0	16.9	22.0	48.7
Postsecondary	11.1	11.2	13.7	15.3
Libraries, museums, and other	1.5	2.1	3.4	6.0
Research at educational institutions	5.8	8.8	12.6	22.8
Off-budget support and nonfederal funds[2]	4.9	8.7	11.2	35.4
Total	39.3	47.8	62.8	128.1
	[In billions of **constant** FY 2001 dollars]			
On-budget	$70.5	$59.5	$67.6	$92.8
Elementary and secondary	32.8	25.8	28.8	48.7
Postsecondary	22.7	17.0	17.9	15.3
Libraries, museums, and other	3.2	3.2	4.4	6.0
Research at educational institutions	11.9	13.5	16.5	22.8
Off-budget support and nonfederal funds[2]	9.9	13.3	14.7	35.4
Total	80.5	72.8	82.3	128.1

[1]Estimated.

[2]Off-budget support and nonfederal funds generated by federal legislation.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education: Office of the Under Secretary, unpublished data, and National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal years (FY) 1982–2002 (selected years); National Science Foundation, *Federal Funds for Research and Development*, FY 1980–2001 (selected years); and unpublished data obtained from various federal agencies. (Originally published as an untitled table on p. iv of the complete report from which this article is excerpted.)

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nonfederal funds generated by federal legislation (predominantly postsecondary education loans) were estimated at $35.4 billion, a rise of 216 percent in current dollars between FY 90 and FY 2001 and 141 percent in constant dollars.

Department of Education outlays

In FY 2001, Department of Education outlays totaled an estimated $36.8 billion (table B), reflecting an increase of 37 percent in constant dollars since FY 80 and an increase of 21 percent between FY 90 and FY 2001. The Department of Education's share of total federal on-budget education funds rose from 38 percent in FY 80 to 45 percent in FY 90 and then decreased to 40 percent in FY 2001 (figure A).

Recipients of federal education support

A little over 60 percent of federal education support, excluding estimated federal tax expenditures, went to educational institutions in FY 2001. Almost 20 percent was used for student support. The remaining 20 percent went to banks and other lending agencies, libraries, museums, and federal institutions.

Federal support for educational institutions

Schools and colleges derived 11 percent of their FY 2001 revenues from the federal government, with the remaining revenues coming from state and local governments, individuals, and private organizations. Of the estimated $678.2 billion in direct expenditures by schools and colleges in FY 2001, revenues from federal sources amounted to $77.4 billion and revenues from other sources amounted to $600.8 billion.

The estimated federal share of expenditures of educational institutions declined from 14 percent in FY 80 to 10 percent in FY 90 and then increased to 11 percent in FY 2001. Among elementary and secondary educational institutions, the federal share declined from 12 percent in FY 80 to 7 percent in FY 90 and then increased to almost 9 percent in FY 2001. Among postsecondary institutions, the federal

Table B.—Funds provided by fiscal year 2001's largest providers of federal on-budget funds for education, by agency: Fiscal years 1980, 1985, 1990, and 2001

Agency	FY 80	FY 85	FY 90	FY 2001*
	[In billions of **current** dollars]			
Dept. of Education	$13.1	$16.7	$23.2	$36.8
Dept. of Health and Human Services	5.6	5.3	8.0	19.5
Dept. of Agriculture	4.6	4.8	6.3	11.0
Dept. of Labor	1.9	1.9	2.5	5.6
Dept. of Defense	1.6	3.1	3.6	4.5
Dept. of Energy	1.6	2.2	2.6	3.5
National Science Foundation	0.8	1.1	1.6	3.5
National Aeronautics and Space Administration	0.3	0.5	1.1	2.1
Dept. of Veterans Affairs	2.4	1.3	0.8	2.1
	[In billions of **constant** FY 2001 dollars]			
Dept. of Education	$26.9	$25.5	$30.4	$36.8
Dept. of Health and Human Services	11.5	8.1	10.4	19.5
Dept. of Agriculture	9.3	7.3	8.2	11.0
Dept. of Labor	3.8	3.0	3.3	5.6
Dept. of Defense	3.2	4.8	4.7	4.5
Dept. of Energy	3.3	3.4	3.4	3.5
National Science Foundation	1.7	1.7	2.1	3.5
National Aeronautics and Space Administration	0.5	0.7	1.4	2.1
Dept. of Veterans Affairs	4.8	2.0	1.0	2.1

*Estimated.

SOURCE: U.S. Department of Education, Office of the Under Secretary, unpublished data, and National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal years (FY) 1982–2002 (selected years); National Science Foundation, *Federal Funds for Research and Development*, FY 1980–2001 (selected years); and unpublished data obtained from various federal agencies. (Originally published as an untitled table on p. iv of the complete report from which this article is excerpted.)

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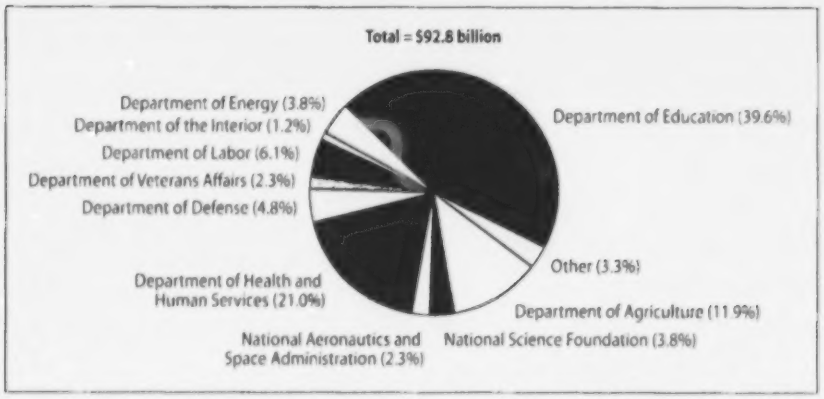
Figure A.—Percentage distribution of federal on-budget funds for education, by agency: Fiscal year 2001


Total = $92.8 billion
Department of Energy (3.8%)
Department of the Interior (1.2%)
Department of Labor (6.1%)
Department of Veterans Affairs (2.3%)
Department of Defense (4.8%)
Department of Health and Human Services (21.0%)
National Aeronautics and Space Administration (2.3%)
National Science Foundation (3.8%)
Department of Agriculture (11.9%)
Other (3.3%)
Department of Education (39.6%)

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal year (FY) 2002; National Science Foundation, *Federal Funds for Research and Development*, FY 99, 2000, and 2001; and unpublished data obtained from various federal agencies. (Originally published as figure 2 on p. 7 of the complete report from which this article is excerpted.)

share declined from 18 percent in FY 80 to 14 percent in FY 90 and then rose to 15 percent in FY 2001.

On-budget funds by education level or other educational purpose

Between FY 80 and FY 2001, federal on-budget funds for elementary and secondary education[1] increased 49 percent in constant dollars, while postsecondary education funds declined 33 percent (derived from table A). Other education funds (which include funds for libraries, museums, cultural activities, and miscellaneous research) increased 89 percent in constant dollars over the same period, and funds for research at universities and university-administered research and development centers increased 92 percent.

Over the shorter term, between FY 90 and FY 2001, federal on-budget funds for elementary and secondary education increased 69 percent in constant dollars, postsecondary education funds declined 14 percent, other education funds increased 35 percent, and research funds at colleges and universities increased 38 percent.

Estimated federal tax expenditures

Between FY 80 and FY 2001, estimated federal tax expenditures increased 52 percent in constant dollars. Between FY 90 and FY 2001, they went up 66 percent. Estimated federal tax expenditures' share of total federal support in education was 24 percent in FY 2001.

[1]In this report, elementary and secondary education programs include adult and vocational education programs in the U.S. Department of Education as well as other training programs, such as those in the U.S. Department of Labor (the Job Corps and other job training programs) and those in the U.S. Department of Veterans Affairs.

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Data sources:

NCES: Common Core of Data (CCD); 1987–2001 Integrated Postsecondary Education Data System, "Finance Survey" (IPEDS-F: FY 1987–2001) (selected years); and unpublished tabulations.

Other: U.S. Office of Management and Budget, *Budget of the United States Government*, FY 1967–2002 editions (selected years); U.S. Department of Education, Office of the Under Secretary, Budget Service, unpublished data; National Science Foundation, *Federal Funds for Research and Development*, FY 1965–2001 editions (selected years); and various federal agencies, unpublished data.

For technical information, see the complete report:

Hoffman, C.M. (2001). *Federal Support for Education: Fiscal Years 1980 to 2001* (NCES 2002–129).

Author affiliation: C.M. Hoffman, NCES.

For questions about content, contact Charlene M. Hoffman (charlene.hoffman@ed.gov).

To obtain the complete report (NCES 2002–129), visit the NCES Web Site (http://nces.ed.gov).

Labor Market Outcomes of Non-College-Bound High School Graduates

Peter Teitelbaum and Phillip Kaufman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The data are from the NCES High School and Beyond Longitudinal Study (HS&B).

Introduction

While most young people enroll in postsecondary education shortly after graduating from high school, not all choose this path. A minority of high school students—referred to as the "non-college-bound"—go directly into the labor market after obtaining their high school diploma. How these students fare in the world of work is of direct concern for educators. The U.S. economy in the late 1980s has been characterized as a new economy—one that demanded high skills of workers and in which ill-prepared persons would not do well. It was also feared that the high school curriculum of the day did not adequately train students for the workplace.

Previous research analyzing the relationships between high school experiences and labor market outcomes suggests that while secondary academic and vocational courses provide only small wage benefits in the first few years after graduation, academic achievement and high school work experience are associated with labor market success (U.S. Department of Education 1994; Bishop 1985; Meyer and Wise 1979). To focus on academic coursework by way of example, there appears to be only modest evidence that such coursework is rewarded by employers, despite their claims that it is general skills that they would like young workers to bring into the workplace (SCANS 1991). Rumberger and Daymont (1982) found that taking additional academic courses including mathematics, English, science, social science, and foreign languages significantly reduced the unemployment rates of young men and women who did not go to college and significantly increased the wage rate and number of hours worked for women. On the other hand, Bishop found evidence indicating that taking a greater number of semesters of academic courses negatively affected employment and earnings.

This report uses data from the High School and Beyond Longitudinal Study of 1980 Sophomores, "Fourth Follow-up" (HS&B-So:80/92), to examine the labor market outcomes of a cohort of non-college-bound students who graduated from high school in 1982. Many of the previous studies of non-college-bound youth cited above have examined the economic returns to education immediately following high school or perhaps 2 or 3 years after graduation. This report uses longitudinal data to examine not only these short-term outcomes, but also the economic returns to high school experiences almost a decade after the cohort graduated from high school.

Findings

This report examines the economic status of non-college-bound high school graduates in 1983 (1 year after most had graduated from high school) and 1991 (9 years after scheduled graduation). The findings generally confirm previous research showing a modest association of high school coursework with females' short-term labor market outcomes. Grades in high school academic and specific labor market preparation (SLMP) courses also had modest associations with early labor market outcomes for both males and females. However, these associations were short lived and had disappeared by 1991.

The number of vocational courses taken was either associated with poorer earnings and unemployment or was not significantly associated with economic outcomes in both 1983 and 1991. The one exception was credits earned in SLMP courses: as the number of SLMP credits earned rose, so did the earnings and weeks employed for females in 1983.

Working during high school was prevalent among non-college-bound 1982 high school graduates, and the findings indicate that the experience was beneficial to new graduates as they made a transition into the labor force (table A). In addition, work experience in high school was positively associated with both early and later labor market success for female graduates.

Conclusion

Controlling for personal characteristics, this study found that academic achievement and work experience while in high school were positively related to several measures of short-term labor market success for non-college-bound students, although females appeared to benefit more than males. Students who either earned higher grades in SLMP and academic courses or who worked during high school tended to earn more and were employed more consistently than their peers their first year out of high school. On the

Table A.—Labor market outcomes according to hours worked in high school by non-college-bound students: 1983 and 1991

	Subsample percentage	Earnings		Weeks employed		Weeks unemployed		Weeks not in labor market	
		1983	1991	1983	1991	1983	1991	1983	1991
Hours worked									
None	26.6	$9,500	$16,100	31	40	7	4	14	7
1–14	27.4	9,900	16,200	34	42	5	3	13	6
15–21	19.6	12,400	17,800	38	42	2	4	12	6
22–29	11.0	12,700	22,800	39	47	2	2	11	2
30 or more	15.3	12,700	20,700	37	48	3	1	12	3
Co-op program									
Yes	6.7	11,700	15,100	34	43	4	3	14	6
No	93.3	11,100	18,000	35	43	4	3	13	6

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, "Fourth Follow-up" (HS&B-So:80/92). (Originally published as table 5 on p.15 of the complete report from which this article is excerpted.)

other hand, the associations between the labor market experiences and academic and vocational coursetaking of the non-college-bound population were generally not significant—in either the short term or long term. In other words, what this group of students actually took in high school, after controlling for demographic characteristics, did not appear to matter to their short- or long-term earnings nor to their long-term employment status.

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U.S. Department of Education. (1994). *National Assessment of Vocational Education Final Report to Congress, Volume II*. Washington, DC: U.S. Government Printing Office.

Data source: The NCES High School and Beyond Longitudinal Study of 1980 Sophomores ,"Fourth Follow-up" (HS&B-So:80/92).

For technical information, see the complete report:

Teitelbaum, P., and Kaufman, P. (2002). *Labor Market Outcomes of Non-College-Bound High School Graduates* (NCES 2002–126).

Author affiliations: P. Teitelbaum and P. Kaufman, MPR Associates, Inc.

For questions about content, contact Shelley Burns (shelley.burns@ed.gov).

To obtain the complete report (NCES 2002–126), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (http://nces.ed.gov).

Data Products, Other Publications, and Funding Opportunities

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Data Products

Data Files and Electronic Code Book: ECLS-K First-Grade Public-Use Child File

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) is following a nationally representative sample of children from kindergarten through the fifth grade, measuring their home and academic environments, opportunities, and achievements. During the 1998–99 school year, this NCES-sponsored study collected base-year data on over 20,000 kindergartners from a wide variety of public and private kindergarten programs and from diverse racial/ethnic and socioeconomic backgrounds. During the following school year, it collected data on the same children as first-graders as well as data on additional first-graders who were brought into the sample through a freshening process in order to make the sample representative of U.S. first-graders in 1999–2000. Data were collected in both the fall and spring of the kindergarten and first-grade years.

This CD-ROM contains first-grade public-use data from ECLS-K, including both the fall and the spring data. All data collected from the sampled children and from their parents, teachers, and schools are included. In addition

to the data files, the CD-ROM contains an electronic code book (ECB) and a user's manual that provides survey and ECB documentation. The user's manual is also available as a separate volume (NCES 2002–135) on the NCES Web Site (http://nces.ed.gov).

For questions about this CD-ROM, contact Jonaki Bose (jonaki.bose@ed.gov).

To obtain this CD-ROM (NCES 2002–134), call the toll-free ED Pubs number (877–433–7827).

Data Files: The Common Core of Data

The Common Core of Data (CCD) is the primary NCES database on elementary and secondary public education in the United States. The CCD survey system annually collects data on all U.S. public elementary and secondary schools, school districts and other local education agencies, and state education agencies. Most of the data are obtained from administrative records maintained by the state education agencies. Included are general descriptive data on schools and school districts, data on students and staff, and fiscal data.

How to get the latest CCD data files

Over the past year, NCES has released several CCD data files, and additional files are scheduled for release in the spring of 2002. All of the current data can be downloaded from the NCES Web Site (http://nces.ed.gov) either in SAS files or in flat files that can be used with other statistical processing programs, such as SPSS. Documentation is provided in separate files. The following list describes specific data files that became available in the summer and fall of 2001.

Descriptions of specific data files

Public Elementary/Secondary School Universe Survey: School Year 1999–2000 (NCES 2001–344). This data file lists and provides information on approximately 94,000 public elementary and secondary schools. It includes the following information for each school: NCES and state school ID number; name and ID number of the agency that operates the school; name, address, and phone number of the school; school type (regular, special education, vocational education, charter, or magnet); locale code (seven categories, from urban to rural); number of students by grade, race/ethnicity, sex, and free lunch eligibility; and number of full-time-equivalent (FTE) classroom teachers. To download these data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact Beth Young (beth.young@ed.gov).

Local Education Agency (School District) and School Universe Survey Longitudinal Data File: 1986–1997 (NCES 2001–381). This set of longitudinal data files tracks public schools and school districts over a 12-year period. Both the school and the district files are available as complete 12-year files (without names and addresses) and, for ease of downloading, single-year files (with names and addresses). Because each school and school district has a unique ID, users can link single-year files by the ID. Data include counts of students, teachers, and graduates. The files provide imputed values for data that were not originally reported by states. To download the longitudinal data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact Lee Hoffman (lee.hoffman@ed.gov).

Local Education Agency Universe Survey: School Year 1999–2000 (NCES 2001–342). This data file lists and provides information on approximately 17,000 school districts and other local education agencies. It includes the following information for each agency: NCES agency ID number; name, address, and phone number of agency; agency type (e.g., regular school district, headquarters of supervisory union, or federally operated agency); county name; locale code; number of students (ungraded and total prekindergarten through grade 12); number of special education and limited-English-proficient students; number of diploma recipients and other high school completers; and number of instructional and support staff by field. To download these data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact John Sietsema (john.sietsema@ed.gov).

Local Education Agency (School District) Universe Dropout Data 1998–1999 (NCES 2002–310). Starting with the 1997–98 school year, dropout data for local education agencies have been reported in a separate data file. The 1998–99 file provides dropout data for the local education agencies in 43 states and other jurisdictions. In addition to each agency's NCES ID code, name, address, and phone number, the Dropout File provides the following information: number of dropouts by grade, race/ethnicity, and sex; dropout rates by grade, race/ethnicity, and sex; and the enrollment base used in computing the dropout rates. Users can merge the Dropout File with the Local Education Agency Universe File by using the NCES ID code for the agency. To download the dropout data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact Beth Young (beth.young@ed.gov).

State Nonfiscal Survey of Public Elementary and Secondary Education: School Year 1999–2000 (NCES 2001–345). This data file provides aggregate, state-level data on public elementary and secondary education for each of the 50 states, the District of Columbia, five outlying areas, the Bureau of Indian Affairs, and the Department of Defense. It includes the following information for each of these jurisdictions: name, address, and telephone number of the state education agency; number of full-time-equivalent (FTE) instructional staff, guidance counselors, library staff, support staff, and administrative staff; number of students by grade, and number of high school completers by race/ethnicity. To download these data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact Beth Young (beth.young@ed.gov).

National Public Education Financial Survey, SY 1998–99, FY 1999 (NCES 2001–343). This data file provides detailed data on public elementary and secondary education finances for the 50 states, the District of Columbia, and five outlying areas. For each of these jurisdictions, the data file includes revenues by source (local, intermediate, state, and federal); local revenues by type (e.g., local property taxes); current expenditures by function (instruction, support, and non-instruction) and by object (e.g., teacher salaries or food service supplies); capital expenditures (e.g., school construction and instructional equipment); average number of students in daily attendance; and total number of students enrolled. To download these data, visit the NCES Web Site (http://nces.ed.gov). For questions on these data, contact Frank Johnson (frank.johnson@ed.gov).

National Study of Postsecondary Faculty (NSOPF:99) Public Access Data Analysis System (DAS)

Featured on this CD-ROM are data from the 1999 National Study of Postsecondary Faculty (NSOPF:99). NSOPF:99 provides postsecondary education researchers, policymakers, and planners with updated information on faculty and instructional staff, including their backgrounds, responsibilities, workloads, salaries, benefits, attitudes, and future plans. This is the first CD to incorporate NSOPF:99 data into the NSOPF Data Analysis System (DAS).

DAS software provides convenient public access to several NCES surveys, allowing users to produce custom-made tables and correlation matrices by selecting variables of interest from lists. In addition to the NSOPF:99 data, this CD also includes all the other data sets that have been made available for public use through DAS software. Visit the DAS Home Page (http://nces.ed.gov/das) for a list of available data sets as well as access to the latest updates.

For questions about this CD-ROM, contact Aurora D'Amico (aurora.d'amico@ed.gov).

To obtain this CD-ROM (NCES 2001–203), call the toll-free ED Pubs number (877–433–7827).

National Household Education Survey of 1999 Data Files

The National Household Education Surveys Program (NHES) encompasses a number of telephone surveys of households designed to address a wide range of education-related issues. In 1999, three NHES surveys were conducted: the Parent Survey (Parent-NHES:1999), the Youth Survey (Youth-NHES:1999), and the Adult Education Survey (AE-NHES:1999). For Parent-NHES:1999, parents were interviewed about their children; topics included parent involvement with children's education, the development and school readiness of young children, and parent preparations for the postsecondary education of older children. Youth-NHES:1999 collected data from 6th- to 12th-grade students about their community service involvement, their civic development, and their preparations for postsecondary education. AE-NHES:1999 collected data from adults about their educational activities.

The NHES:1999 data files are available in ASCII format and can be downloaded from the NCES Web Site. These data files contain weights that were revised on June 1, 2001. SAS, SPSS, and Stata setup files are also provided.

For questions about this data product, contact Chris Chapman (chris.chapman@ed.gov).

To obtain this data product (NCES 2000–079), visit the NCES Web Site (http://nces.ed.gov).

Data File: State Library Agencies Survey: Fiscal Year 2000

The State Library Agencies (StLA) Survey is conducted annually by NCES as a cooperative effort with the Chief Officers of State Library Agencies (COSLA), the U.S. National Commission on Libraries and Information Science (NCLIS), and the U.S. Census Bureau. The StLA Survey provides state and federal policymakers, researchers, and other interested users with descriptive information about state library agencies in the 50 states and the District of Columbia. The StLA Survey for fiscal year 2000, the seventh in the series, collected data on 423 items, including services to libraries and systems, electronic services and information, public service hours, service outlets, service and development transactions, collections, allied operations, staff, income, and expenditures.

The StLA Survey file is available in both Microsoft Access and ASCII formats. The data and related documentation can be downloaded from the NCES Web Site.

For questions about this data product, contact P. Elaine Kroe (patricia.kroe@ed.gov).

To obtain this data product (NCES 2002–307), visit the NCES Web Site (http://nces.ed.gov).

Other Publications

Student Data Handbook for Elementary, Secondary, and Early Childhood Education: 2001 Update

Administrative Records Development Project (Council of Chief State School Officers) and Beth Aronstamm Young

The *Student Data Handbook for Elementary, Secondary, and Early Childhood Education* was developed to provide guidance concerning the consistent maintenance of student information. It defines data elements and definitions describing personal information, enrollment, school participation and activities, out-of-school experiences, assessment, transportation, health, special program participation, and discipline. The handbook is a tool to help the public and the American school system make information about students more useful and effective in meeting student needs.

The 2001 update provides change pages that can be inserted into the 2000 edition of the handbook. Changes include insertion of new data elements, as well as revision of some of the data elements and definitions.

Author affiliations: Administrative Records Development Project, Council of Chief State School Officers; Beth Aronstamm Young, NCES.

For questions about content, contact Beth Aronstamm Young (beth.young@ed.gov).

To obtain this publication (NCES 2000–343r), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (http://nces.ed.gov), or contact GPO (202–512–1800).

Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment

Susan P. Choy

This 38-page booklet contains an essay summarizing the findings of several recent NCES studies about the experiences of high school graduates and postsecondary students whose parents did not attend college. The essay originally appeared in *The Condition of Education: 2001*. Each year, *The Condition of Education* summarizes important developments and trends in education using the latest available data.

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For questions about content, contact John Wirt (john.wirt@ed.gov).

To obtain this publication (NCES 2001–126), visit the NCES Web Site (http://nces.ed.gov).

Highlights From the 2000 Program for International Student Assessment (PISA)

Mariann Lemke, Christopher Calsyn, Laura Lippman, Leslie Jocelyn, David Kastberg, Yan Yun Liu, Stephen Roey, Trevor Williams, Thea Kruger, and Ghedam Bairu

The Program for International Student Assessment (PISA) is a new system of international assessments that focus on 15-year-olds' capabilities in reading, mathematics, and science literacy. PISA is implemented on a 3-year cycle that began in 2000. Each PISA assessment cycle focuses on one particular subject, although all three are assessed in each cycle. PISA 2000 focuses on reading literacy, measuring how well 15-year-olds are able to apply different reading processes to a wide range of reading materials. This 12-page brochure presents highlights of the U.S. results from PISA 2000.

Author affiliations: M. Lemke, L. Lippman, and G. Bairu, NCES; C. Calsyn and T. Kruger, ESSI; L. Jocelyn, D. Kastberg, Y.Y. Liu, S. Roey, and T. Williams, Westat, Inc.

For questions about content, contact pisa@ed.gov.

To obtain this publication (NCES 2002–116), visit the NCES Web Site (http://nces.ed.gov).

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year. The following are examples of grants recently awarded under the program:

Research Grants

- Motoko Akiba, Mills College—National, School, and Teacher Effects on Student Victimization of School Violence: A Cross-National Study of 49 Nations From TIMSS 1995 and TIMSS 1999
- Corinne Alfeld, Frederick D. Patterson Research Institute—African-American HBCU Students Who Began at Community Colleges
- Marcia Bellas, University of Cincinnati—Age and Advanced Degrees: A Comparison of Older and Younger College Graduates and the Pursuit of Graduate Education
- Karen Bradley, Western Washington University—Gendered Pipelines: A Cross-National Study of Sex Segregation in Engineering and Computer Science Fields of Study
- Sophia Catsambis, Queens College, CUNY—Vital Connections for Students At Risk: Family, Neighborhood, and School Influences on School Engagement and Dropping Out
- Ariel Kalil, University of Chicago—Consequences of Parental Job Loss for Adolescents' School Performance and Educational Attainment
- David Mustard, University of Georgia—Merit Aid Sorting: The Effects of HOPE-Style Scholarships on College Stratification by Ability, Race, and Gender
- Therese Pigott, Loyola University Chicago—Correlates of Success in Kindergarten

Dissertation Grants

- Lora Cohen-Vogel, Vanderbilt University—School Governance at the Intersection of Public School Choice and Accountability
- Ashlesha Datar, RAND Graduate School—Does Entering Kindergarten at an Older Age Lead to Better School Performance?
- Jessica Howell, University of Virginia—Eliminating Affirmative Action in Higher Education: Restricting Access or Engendering Equality?
- Dongbin Kim, University of California, Los Angeles—The Effects of Loans on Students' Degree Attainment: Differences by Race and SES
- Tatiana Melguizo, Stanford University—What Types of Institutions Are Doing a Better Job Graduating Minorities? A Comparative Analysis for African-American, Hispanic, and White Students in the U.S. in the Last Two Decades
- Sarah Reber, Harvard University—Court-Ordered Desegregation Plans: Implications for Segregation, 'White Flight,' Residential Segregation, and School Finance
- Marjorie Wallace, Michigan State University—Making Sense of the Links: From Government Policy to Student Achievement

For more information, contact Edith McArthur (edith.mcarthur@ed.gov) or visit the AERA Grants Program Web Site (http://www.aera.net/grantsprogram).

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage education researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000. The following grants were awarded for fiscal year 2001:

- David Grissmer, Rand Corporation—Analyzing State NAEP Data to Address Educational Policy Issues in K–12 Education

- Lawrence Rudner, LMP Associates, Inc.—Scoring Content Essays Using Bayesian Networks
- Robert Lissitz, University of Maryland—Science Achievement in Social Contexts: An Alternative Method for Analysis of Data From NAEP
- Richard Niemi, University of Rochester—Components of Knowledge in the NAEP 1998 Civics Main and Trend Assessments
- Daniel Sherman, American Institutes for Research—Application of Small Area Estimation Methods to NAEP
- Claudia Gentile, Educational Testing Service—Evaluating the "Creative" in Creative Writing
- Matthew Schultz, ACT, Inc.—Describing Achievement Levels With Multiple Domain Scores

For more information, contact Alex Sedlacek (alex.sedlacek@ed.gov).

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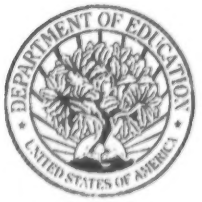

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